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Portion of the Pan-Athenaic Frieze.
(From "Sculptures of the Parthenon"—British Museum.)

ANCIENT MONUMENTS IN SCOTLAND AND WALES.

THE Reports of the two Royal Commissions on Ancient and Historical Monuments and Constructions in Scotland and Wales, which have recently been published, are important as showing the progress which is being made with the work of classifying the ancient monuments of the United Kingdom. The Scotch Inventory deals with the County of Berwick, and is, therefore, especially concerned with the valuable and charming ruins of Dryburgh Abbey, on which the Commissioners make in an appendix a special report. This appendix to the Inventory would in itself be a justification for the existence of these Commissions, since it places on record not only a judicious and official report on these ruins, but also summarises the points which demand immediate attention. The very fact, however, that there are certain parts of Dryburgh Abbey which require care at once shows that these Commissions must logically be followed by some kind of measures for the further safeguarding of important historical monuments. It would not be amiss to dwell longer on this single ruin, but we are now concerned with the more general features of these two Reports. It is noticeable, and not altogether satisfactory, that the Welsh and Scotch Reports, both in form and in matter, differ from each other, as well as from the English Report. In the latter are many illustrations, but the Treasury seems to have vetoed any in the Reports now before us. The Welsh Commission has further issued only a general Report, and has not yet published the Inventory of Monmouthshire, which, it is stated, is in preparation. This latter Report is more popular and more enthusiastic than that of the Scotch Commission, and is characterised by an irrelevancy which, arising as it does from interest in the subject, must be forgiven. Some space, for example, is given to the subject of the teaching of archæology in relation to history in primary and secondary schools, and some sensible and suggestive observations are made on the point. The Commission has also sought to enlist in its service as many private occupiers as possible, and consequently it is carrying on its work largely by local visits. Such visits, it is added,

"are also of material assistance in quickening the activities of local societies which have become lethargic."

Whether all this is not unduly enlarging the jurisdiction of the Commission is open to question, but certainly this action must assist in awaking interest in and tending to the preservation of ancient monuments in Wales. Just as the Scotch Report is occupied largely by the subject of Dryburgh Abbey, so the Welsh Report deals at large with the prehistoric camp at Penmaenmawr—the most important in the Principality; one, however, which is being destroyed for commercial purposes under a lease from the Crown—a singular commentary on the value of Government assistance in the preservation of memorials of the past. This is sad reading, and the description of the position of Newport Castle is not cheering. The fact is that in many parts of Wales its industrial development is fatal to the preservation of memorials of the past, indicating the necessity for the careful safeguarding in museums of drawings, prints, and photographs of ancient remains, which may be in danger of destruction by modern movements. These movements must be realised, and if the preservation of memorials of the past cannot in all cases be secured the next best alternative must be adopted. This fact is emphasised by the Inventory of Berwickshire, where many relics, slabs and stones, are classified, some of which can scarcely be safeguarded unless they are moved to some kind of museum. Here also they will be more easily seen by those who are interested in the study of archæology. No one can doubt that an ancient monument left in its old picturesque surroundings is more suggestive and more interesting than when seen in a rather dreary section of a local museum; but feeling has often to give place to so-called necessity, and the aim of those who are to be entrusted with the care of the ancient monuments classified in these Reports should be to safeguard them, with due regard to modern necessities in the cases, which cannot be many, where these necessities may be justified as paramount.

THE CHURCH OF ST. KYNEBURGA AT CASTOR.

FAR back in the Dark Ages stretches the history of what is now the quiet village of Castor, by Peterborough.

Under the Roman sway the city of Durobrivæ, called by the Saxons Dormancester, first rose to importance; situated on the great high road to the north, the Ermin-street, and guarding the ford of the River Nen, it was a military post of no small consequence. The camp was extensive, being on both sides of the river, considerable remains of which have been recently uncovered by the indefatigable antiquary, the late Mr. Artis; several sites of houses have been found with good mosaic pavements and a number of bronze implements and ornaments.

After the withdrawal of the Romans Dormancester must still have retained some position, as in the year A.D. 650, about fifty years after the coming of St. Augustine, the pious daughters of Penda, King of the Mercians, four in number—Kynesdred, Kyneswitha, Kynesburga, and Weeda—here founded the monastery for nuns, which afterwards gave the name of Kynesburgacastre to the place.

They were all virgins except Kynesburga, who was married to Alfred, King of Northumbria, but leaving the court she retired to and presided over the convent which she and her sisters had so munificently founded. At about the same time the sons of Penda founded, with the assistance of their sisters at Castor, the neighbouring abbey of Medeshamsted or Burgh (now Peterborough).

At Castor St. Kyneburga died and was buried and afterwards canonised. In A.D. 946, King Edred, brother of Edmund, King of the Mercians, gave, at the instance of Turketidus, Abbot of Croyland, his Chancellor, "*ligna et lapides, de proximis sylvis and lapidicinæ hunc royali monasterio suo de Castre*" (Hist. Ingulph Oxon). This was probably to repair some damage done by an inroad of the Danes, who in the year A.D. 870 had destroyed the Abbey of Burgh and slain Abbot Hedda, together with seventy of his monks. In the year 960 the Abbey was rebuilt by Athelwold, Bishop of Winchester, protected by Edgar, King of England, who also gave to it the lordship of Castre by Royal Charter.

In 972 Adulphus, Abbot of Burgh, greatly improved the district, cutting down the woods, building villages, and giving estates to different knights, by whose names many of the villages are still known.

Early in the XIth century the church at Castor was robbed of its chief glory, the bodies of Saints Kyneburga and Kyneswitha, which were translated to the Abbey of Burgh by Abbot Elsinus (1005-55). In 1013, the country being once more laid waste by the Danes, the Abbot of Burgh fled to Thorney for safety, taking with him the bodies of the Holy Virgins. The monks kept the anniversary of the Translation on March 7. In Castor field there is a ridge called Lady Connyburrow's Way, and in Peterborough Cathedral is a stone, sometimes known as the Shrine, placed over the bodies of the Virgins; the detail of the design would agree with this date, but it is also said to be a monument to Abbot Hedda and his monks. It has six figures and canopies in low relief on each side and a pent top, also carved. There are no remains of the Monastery of Castor, but in the churchyard are the remains of an altar of Saxon times.

At the beginning of the XIIth century, the country having quieted down after the troubled years of the Conquest, the present church of Castor was commenced. It was cruciform in plan, with a nave without aisles, north and south transepts and chancel, probably with an Eastern apse, after the model of the Mother Church of Burgh, and a great central tower. It was consecrated with much pomp on April 17, A.D. 1124, by the Bishop of Lincoln. Part of one of the windows of the south transept of this church remains; it was blocked up and partly destroyed when the south aisle was built, and part of another remains in the north transept. They were small, circular-headed, with a double billet mould carried right round; the north transept probably had two, with a circular light above. The window on the west end appears to have been moved from some other position, and the present south door was then in the nave wall. In the north wall of the chancel are built some fragments of coupled shafts, which may have been the jambs of the chancel windows. If so, they were very rich.

The tower stands on four massive piers with attached shafts and heavy cylindrical arch mouldings, the arches are stilted, and the caps are elaborately carved in low relief with men, dragons, birds, lions, foliage, etc.; a boar hunt, which is very spirited, one dog being completely halved by the boar; another represents a youth of the period, in defence of a lady, who is weeping, about to give battle to a man with an enormous eye; they are both armed with hammers and shields. A third is a man stealing grapes, which is curiously similar in design to one at Wells Cathedral; the neckings have the cable moulding. The tower has an opening on each side of the lower story, the use of which is somewhat doubtful; on the north and east sides are the marks of the earlier roofs.

The first stage has on each face a two-light window deeply recessed under an arch in the centre and a blank arcade on each side; above the labels the wall is diagonally diapered; this is built, not cut on the face, the joints being diagonal. The second and belfry stage has three two-light openings in the centre and a blank arcade on each side, the centre shafts of the blank arcade being twisted. Under the top corbel table are five round holes on each side; they are irregularly placed, and perhaps had water-spouts from them. All the labels and corbel tables are carved with diapers, and the corbels are very diverse, a sort of pig's snout being the most frequent. There is a slight set-off above each corbel table and label, a very delicate refinement. There is no sign of the original termination of this tower.

Over the south porch is built into the wall a slab carved in low relief with a figure, a nimbus round the head and in the left hand a tablet, the right being raised in blessing, and a patera on each side of the head; round is a band of ornament, and below an interlaced design, but all much weather-worn. Over the priests' door in the chancel is the dedication stone with an inscription of the date in relief except the figures XXIIII., which are incised. The south transept has a Norman corbel table, and there are some corbels built into different parts of the church. This is all that remains of the Norman work.

In the XIIIth century considerable additions were made; the chancel was entirely rebuilt and extended to an unusual length, being only 10 ft. shorter than the nave, and the floor was raised considerably. It was lighted by long, narrow pointed lancets, with a rebate outside for the lattices, and a very flat scoinson arch inside, the wall plate coming close down on the arch. At the east end there seem to have been three lancets; the outer jambs of the two side ones remain, the present window being

fitted therein. On the south side is a double piscina, with carved dog-tooth moulding and marble shafts, and a sedilia with two round arches; the priests' door has a circular head outside and a flat arch inside. The south aisle was added to the nave, with three round arches on circular pillars having caps with the nail head enrichment; the roof had a flatter slope than the nave roof. The Norman south door was moved and reused, a smaller arch opening being built inside the original arch; a large south porch was erected over this with a high pitched roof, the weather mould of which is visible. The south transept was partly rebuilt; there is a round arch opening into the south aisle, the outside springing of which is 6 in. higher than the other, and two slightly pointed arches on very slender clustered shafts towards the eastern aisle. In both the two-light windows, with circles in the head, the tracery is all in one piece, but the three-light window tracery is built up of small pieces. In the south wall of this transept and that of the south aisle there are two sepulchral arches. The masonry of the buttresses and coins has been carefully squared, and the walling has the appearance of being the Norman stone work reused, occasional squared courses running through. Somewhat later the roof of the eastern aisle was raised and the arch opening into the chancel was made and windows pierced in the east wall.

In the XIVth century further additions were made; the north aisle was built with three pointed arches to nave on octagonal piers with circular moulded caps and bases; one of the pillars is much stouter than the other, and has been cut down to fit the cap, both caps being of the same size.

The north door has heavy ogee mouldings and three steps down into the church. At the eastern end was erected a shrine forming a reredos for a side altar, with an open stone grill below, to enable the nuns who would be in the north transept to see the altar; above are five niches, the centre having a pedestal, perhaps for Our Lady and the four daughters of Penda; close by there is a double aumbry, with a small upper and large lower compartment. The aisle is lighted by a broad lancet at the west end and one five-light and one three-light window on the north, flat-headed with reticulated tracery the cusping of which differs.

The west window of the nave is of Decorated character with just a touch of the perpendicular in the straight line of the centre. The window in the south aisle, with reticulated tracery, is the only window in the church with moulded mullions; all the others are either plain or hollowed chamfers. The south door put up about this time has an inscription of "Richard Beby, *rector ecclesie de Castre fecit*" around it with quatrefoils. But this name does not appear in the list of rectors.

In the XVth century a considerable amount of work was done; the clearstory added to the nave, with three three-light windows on each side, the apex of the roof was lowered, and an elaborate one of flat pitch was erected, with moulded principals and purlins, carved bosses and angels with outspread wings, the aisle roofs being treated in much the same way. The walls of the chancel were raised, and perhaps the old roof timbers were shortened and reused, this work being much plainer than the nave roof. The east window was inserted in the early English jambs roughly cut away to fit the transoms, and at the springing the wave mould of the arch simply rests on the top of the jambs; the label stops also belong to an earlier window—one of them has been a beautiful head. A three-light window was inserted over the piscina with a four-centre head; outside the early string has been destroyed to make room for the sill, though by keeping the sill up 6 in. the string might have been left, an example of the indifference of the XVth-century workmen for earlier work. In the north wall is a small cinquefoiled piscina, with a curious square funnel at the top, the object of which is not apparent.

In the north transept was erected a turret with a circular stair, leading to a chamber in the upper part; the stair has two small lights looking into the transept, but none outside.

The parapet and spire lights are of the same date, the design of the former being curiously like the trefoiled transoms of the east window; at the north-west corner there is a slight variation—the pinnacles which seem to have been intended were never added, the dowel holes are quite clean. The spire commences with a perpendicular course of masonry before the slope begins; there is an opening on the north and south sides for egress; the spire lights are in two rows of four in each, the lower having a species of combination sill and transom, the upper row having niches in the diagonal face. They are all insertions after the spire was built, so perhaps the spire may date from an earlier period, although this was a great spire building age; most of the churches in the neighbourhood, such as Chesterton, Water Newton, Wansford, have spires of the same class of design except the top niches, which only occur here. At each of the four corners at the base of the spire is a curious set-off like the commencement of a pinnacle.

There are six bells in the belfry, all of which are inscribed.

Nos. 1 and 2.—"Henricus Bagley *nos fecit* 1700."

Nos. 3 and 4.—"Henry Bagley of Ecton made me 1700."

No. 5.—"*Cantate domine canticum novum Henricus me fecit* 1700."

No. 6.—"I to the church the living call and to the grave do summon all. Henry Bagley made me 1700."

They are hung on a bell carriage placed diagonally, which would relieve the tower arches from the direct vibration.

The monumental remains are few; there is a stone figure with a trefoiled canopy over, the head and the hands raised in prayer projecting from under the coped coffin, which hides the remainder of the figure; this dates from the XIIIth century. It is now in the south transept, but its original position is uncertain, and there is no inscription on it, no record of whom it commemorates. Under the arch east of the piscina in the chancel is part of a floriated cross. In the churchyard there is a stone coffin uninscribed, and on the walls of the churchyard, used as coping stones by someone who possessed a frugal mind, are some more coffin lids with raised crosses, but as the youth of the village daily disport themselves thereon the remains are now very indistinct.

In the churchyard are the remains of a Norman font, which apparently consisted of a centre circular basin with four small detached shafts round, but it is in fragments.

Generally the church stands below the crest of the hill on the southern slope of the north side of the valley of the River Nen, a fairly safe position for the turbulent times in which it was built. The village is chiefly built below on the river side; this has a decidedly fine effect, as the church stands up against the sky. On approaching from the north across Castor field, which extends for some distance flat and without hedges of any sort, the spire appears to grow out of the ground.

The tower is a most striking one, as the effect in strong sunlight of the boldly-marked decoration is most vigorous and brilliant. The parapet, with the commencement of the corner pinnacles, is not happily designed, and the spire lights in two rows rather stunt the spire; the top row, when seen at an angle, sometimes gives it a lopsided appearance.

At the church at Water Newton on the other side of the river there is a Norman western tower, which is capped with a simple broach spire resting on the Norman corbel table, without either parapet or pinnacles, which has a better effect, and at Wansford is a similar example. The flatness of the roofs is a decided blemish, as from below they are not seen at all; the early roofs were probably more satisfactory.

Internally the effect is very fine, the heavy Norman arches and rough vaulting under the tower contrasting most effectively with the airy grace of the pillars in the south transept, recalling the hand which designed the west front of Peterborough.

The chancel, considerably raised and flooded with light from the great east window when seen from the west end through the dark crossing, seems designed expressly for the elaborate ritual of the early church, and one rather sighs for the days of the "grayte candellstykes of latyn, and the altar hanging of red sylke," and the one vestment called the golden vestment, and most of all for the stained glass, of which there is not a vestige remaining anywhere in the church. On the north wall of the north aisle at the west end are some traces of a fresco, but the colour has faded and is almost indistinguishable. It has three horizontal divisions with figures in each which might represent the "Last Judgment."

The main inside dimensions of the church are:—Length, 116 ft. 9 in.; breadth across transepts, 58 ft. 1 in.; breadth across nave and aisles, 44 ft. 9 in.; breadth of chancel, 18 ft. 6 in.; height from pavement to top of spire, 110 ft. 10 in.

Of the monastic buildings there are no remains, the tithe barn, the last of them, having been destroyed. This was of considerable size, though not so large as the tithe barn of Peterborough, which

still stands, and into which it is said fifty loads could be drawn at one time.

The village is built entirely of stone, the houses being small, but generally with moulded copings and chimney-stacks and mullioned windows.

The pigeon houses are a great feature. There are some five or six, well built of stone, perfectly plain, with a small low door at one end; just under the eaves is a projecting string course to prevent stoats and vermin getting in under the roof, which is of stone slates, and at the apex of the ridge one or sometimes two openings covered with a timber flèche.

The inside is entirely lined with wrought stone, forming square holes for the nests, with space for about 1,500. They date from about the XVIIth century, when pigeon breeding must have been an industry of some importance, the expense of building these being considerable. They are now all falling into decay.

On a green balk in Castor field, descending to Gunswade Ferry, are two upright stones called Robin Hood and Little John, said to be where two arrows fell, which were shot from Alwalton churchyard by the above-mentioned worthies. Gunton says they were set up as evidence that stone from Barnack to St. Edmunds Bury might pass without paying toll, and that they are niched at the top like arrows in memory of St. Edmund.

There is an account of the church in Bridge's "History of Northants" and Sweeting's "Parish Churches near Peterborough"; mention of parts in Britton's "Architectural Antiquities of Great Britain," and an engraving of the tower from the north-east; in Baker's "History or Northants" a plate of the tower in elevation. In the "Architectural Association Sketch Book" (old series) a sketch of the tower and measured drawing of piscina, sedilia, and south door. In Kerrich's Sketch-Book at British Museum (1791) are pencil sketches of parts. In "The Ancient City of Durobrivæ," by Artis, the church appears in the plates besides the engraving of the Roman remains.

E. HOWLEY SIM.

[Our plates this week are from Mr. Howley Sim's measured drawings of Castor Church.]

NOTES.

Dr. Johnson's House, Gough-square, E.C.

IT is announced that No. 17, Gough-square, at the rear of Fleet-street, has been acquired for presentation to the nation by a donor who will erect a trust for its preservation and maintenance. The house is the only one in London now remaining that can be identified with certainty as having been a home of Dr. Johnson. It forms the west side of the square, standing by a passage leading into Johnson-court (which, by the by, was not named after him, though he lived there some years subsequently), and stands upon an estate until lately owned by the Lords Calthorpe, formerly of Gough House, in the square, south side. It has suffered but little change during the past two hundred years or so. Dr. Johnson removed thither in 1748 from Holborn Bars, the "plan" of his Dictionary being then before the public. In the garrets beneath the sloping roof on the south side he accomplished that task—he published the Dictionary in two volumes folio, April, 1755; whilst living there he wrote "The Vanity of Human Wishes," and "The Rambler," 1750-2; began "The Idler"; made the friendship of Dr. Burney, Sir Joshua Reynolds, Dr. Bathurst, Strahan, Bennet Langton, and Topham Beauclerk; and gave retreat to Dr. Levett and Mrs. Williams. He quitted the house for Staple Inn in 1758, after the death of his wife. It was afterwards occupied by Hugh Kelly, playwriter, whom Goldsmith mentions in his "Retaliation."

A Bibliography of the History of London and the *Builder*.

MR. K. H. VICKERS, Lecturer upon London History, London County Council, and a band of co-adjutors, chiefly ladies, have undertaken to gather, sort, tabulate, and index all the references to the story of old and modern London which are to be found in published books, reviews, journals, newspapers, magazines, and the like. Miss Hadley, Archivist and Records Clerk, London County Council, will act as Secretary to the staff of searchers. The magnitude of the task seems to be wellnigh overwhelming, yet enthusiasm and concerted effort will do much. As an instance of the vast field which is presented by one illustrated journal alone we may mention that a collector, supplementing the precedent labours of the late Dr. Hulme, has gathered from the volumes of the *Builder* during the past thirty or so years more than 25,000 items relating to the history, in its manifold aspects, of London—its topography, antiquities, chronicles, buildings, streets, changes, statistics, municipal control, developments, and so on; and this, be it observed, for less than one-half of the period covered by the publication of a single weekly periodical—our own. Communications should be addressed to Mr. Vickers, No. 4, Verulam-buildings, Gray's Inn, W.C.

The Architects of Manchester and the Corporation.

THE Manchester City Council having adopted a recommendation of the Education Committee in favour of erecting a new School of Domestic Economy at a cost of 26,000*l*., Mr. G. H. Willoughby has written a letter of appeal to the promoters, which appears in the *Manchester Courier* of the 19th inst., that the choice of a design for a building of this size should be obtained from Manchester architects in competition. With Mr. Willoughby's temperate and well-reasoned arguments most people will sympathise, especially as the large number of schools erected by the Education Committee of Manchester are not designed by the City Architect—an experienced, and talented man, as Mr. Willoughby states, but are "the product of draughtsmen and a clerk of works of the old Board, acting under the instructions and guidance of the Director of Education who, however eminent an educationalist he may be, has neither qualifications nor claim for recognition as an architect." Reference is made to the poverty of idea resulting from such a system, and to the question of cost. "Some sixteen years ago," says the writer, "my late partner and myself erected for the old Board a large school in this city . . . . at a cost of less than 12*l*. per head. To-day, owing to the acute depression that has hung so long over the building trade, prices are certainly no higher, and yet judging from the somewhat meagre information that is accessible . . . I have yet to learn of any school, recently erected, costing less than 17*l*. to 18*l*. per head." It is difficult to believe that such representations will be ignored, and we hope that the Manchester City Council will decide to avail themselves of the services of the many able architects practising in Manchester and district.

Conservatoire des Arts et Métiers.

THE Report by Professor Léon Guillet upon the work conducted during the year 1909 in the Test Laboratories of the Conservatoire National des Arts et Métiers, Paris, deserves study by architects, engineers, and others who are anxious to promote scientific investigation of practical value in this country. The French laboratory is divided into five sections devoted to physics, metals, materials of construction, machines, and chemistry. The Physical Section deals with measures of length, angles, weights, and density, the verification of manometers, barometers, thermometers, pyrometers, and kindred instruments, and with optical, photometric, and calorimetric tests. Among other inquiries, the section of metals have made mechanical and micrographical tests upon fractured rails, boiler tubes and plates, and upon chains and cables which have given way when in actual service. The Materials of Construction Section has been occupied specially with mechanical tests upon lime, cement, mortar, stone, refractory products, and ceramic wares. Investigation has also been made into the strength of bricks, grindstones, emery wheels, the conditions of "fritting" of dolomite in ceramic work, and into the weathering and permeability of materials. The Chemical Section has done good service by making analyses of various materials and metals used in construction. From the Report of Professor Guillet it is evident that the laboratory has made appreciable progress during the past year by important additions to the equipment, by continual improvements in methods of testing, and by researches of that scientific and industrial character which has helped to build up the renown justly enjoyed by this important department of the Conservatoire.

Embedding Wood in Concrete.

ONE result attending the extensive employment of concrete now prevailing is the practice sometimes adopted of embedding timber in that material. In many cases no harm follows, but in others the inevitable consequences may be particularly objectionable. When concrete so placed is in the act of setting the embedded wood absorbs moisture and begins to expand,

tending to rupture the concrete, while the moisture gained by the wood is certainly an undesirable constituent. Those who have had experience of embedding timber in concrete work are generally inclined to avoid any repetition of the practice, unless, of course, the timber is merely in the form of thin strips or plugs for purely incidental purposes.

ARCHITECTURAL EDUCATION AT HOME AND ABROAD.

By ALFRED W. S. CROSS, M.A.

Part XXII.

On comparing the results obtained in the architectural schools of France and America with those of similar teaching institutions in our own country it appears to be quite evident that if English architects are to hold their own with their foreign *confrères* a comprehensive, definite, and practical course of architectural training must be instituted throughout the United Kingdom. For there can be no doubt that the educational facilities provided for the student of architecture in this country are wholly inadequate either for his present or his future needs. But inasmuch as the majority of the courses of study formulated at the various teaching centres have been arranged to meet the requirements of the Board of Examiners of the Royal Institute of British Architects, it would seem that the root of the evil lies in the insufficiency of the educational tests instituted by that body. Indeed the Royal Institute of British Architects offers, through its examinations, direct encouragement to imperfectly educated and otherwise unsuitable persons to become members of a great and arduous profession which requires from its aspirants an educational equipment of an exceptionally diverse and manifold character. As an example the preliminary examination of the Royal Institute of British Architects is framed upon an altogether lower standard than that of any of the examinations which are accepted by the Board of Examiners in its place.

Among other defects its mathematical test is of a phenomenally low standard, whilst the papers in Geography and History are ridiculously easy.

The test papers in Latin and French are probably suitable for the examination of a well-taught boy of sixteen, but both fall far below the standard of knowledge that might reasonably be expected from a youth who leaves a secondary school at the usual age for entering a profession.

As to the questions in Elementary Mechanics and Physics, they are so elementary that they can scarcely be regarded as being in any way in the nature of a searching test of the candidate's knowledge of these subjects.

And what, in the name of all that is wonderful, is the object of requiring the candidate to write from dictation "a short passage from some standard English author" when he has already been examined in Subject I. (English Composition), and produced a short essay in which, presumably, "clear and well-formed writing, accurate spelling, and correct punctuation" are regarded as essentials?

But, after all, any criticism must depend, in the main, upon the age at which the Institute desires youths to commence their professional training. If sixteen is considered a suitable age, there is probably nothing absolutely unsuitable in the general scheme of examination which has been put forward; but if the Royal Institute of British Architects desires to attract boys who have had the advantage of a sound school education, the entrance test is wholly inadequate. However, I am inclined to think that the majority of my professional brethren will agree with me that no boy of sixteen ought to be encouraged to enter a profession which suffers—perhaps to a greater extent than any other—from the constant influx of imperfectly educated recruits. Nor is it fair to the architectural student himself that he should be led to believe, by the comparative ease with which he can obtain the Associateship of the Royal Institute of British Architects, that the art of the architect is one which requires no special application and no very severe or laborious course of study. Unfortunately for its devotees, architecture is a most exacting calling, for "*ars longa, vita brevis*" is still unquestionable, and the student days of the architect end only with his death. And if, then, this is admitted, surely some serious effort should be made in this country, as it has been successfully made both in France and America, to weed out the unsuitable aspirants to architectural fame by the process known as the survival of the fittest.

If we consider the strenuous lives led by the young architects of the Ecole des Beaux-Arts, try to realise the vast amount of work involved in the successive examinations which step by step have to be grappled with in their entirety, for a long term of years, and compare the courses of study at the French and American schools with those necessary to satisfy the examiners in our own Intermediate and Final Examinations, we are compelled to come to the conclusion that the education of the artist is regarded very seriously indeed in France and countries other than our own.

Indeed the splendid system of free art education secured to France by the wise policy of Louis XIV. in recognising the value of architecture as a national asset is in striking contrast with our own time-honoured system of Government which, in the main, is still carried out in a strictly utilitarian and art-ignoring spirit.

And the effect of the thoroughly sound, definite, and practical course of tuition in art obtainable at the great Parisian school is ludicrously apparent in comparing the artistic instincts of France and England.

In the former country method, order, sound judgment, and refinement are more often than not the concomitants of any suggested great architectural improvements in town or country. But in England these qualities are rarely to be found in official proposals for civic embellishments.

On the contrary, we are rapidly becoming accustomed to associate many so-called "public improvements" with architectural incompetency and inexperience, and this predominating state of mind is mainly brought about by the utter failure of those responsible for the artistic aspects of our streets to grasp the elementary fact that the art of architecture is not one of a merely utilitarian character.

Then, again, many architects are much concerned, and, in my opinion, justly concerned, at the unfortunate tendency of municipalities to entrust the work of designing important public buildings to half-trained and unscholarly official architects and surveyors, a policy which is too often accompanied with disastrous results.

But in a country such as our own, in which there are at the present time scarcely any teaching centres where the whole of the architectural students' training, both technical and artistic, can be obtained, and where individualism in art is generally synonymous with incoherence, eccentricity, or downright vulgarity, nothing short of a fundamental change in our methods of teaching will enable future practitioners to produce better work than that to which the present generation has become accustomed.

Irregularity in the planning of a mediæval city combined with the undoubted charm of its narrow tortuous streets and the varied and picturesque outline of its public, ecclesiastical, or domestic buildings may delight the artistic eye, but no one will suggest that these are elements suitable for incorporation in a design for a modern city. Yet, in some respects, English architects are not altogether free from the fetters of mediævalism, as a propensity for incoherent expression is still to be found in much of our recent civic architecture, which often exhibits great lack of definiteness, symmetry, and regularity.

Indeed our haphazard, short-sighted, and half-hearted system of dealing with the ever-increasing difficulties of street planning deservedly make us the laughing-stock of the world.

How, for example, if anyone could be found sufficiently vandalistic to make a similar proposal, would the City Corporation of London's scheme for the treatment of the new St. Paul's Bridge be received in Paris, Vienna, or Berlin?

But in London, the richest city in the world, it is complacently suggested that art must necessarily resign her pride of place in favour of tramways! Truly we are still a nation of shopkeepers, and we shall remain one until our civic improvements are vested in the hands of men of culture who possess sufficient knowledge to enable them to appreciate the artistic needs of modern cities.

And of these requirements open places, vast straight thoroughfares, the symmetrical and regular distribution of public buildings, and various refinements of detail—which under the present *régime* are passed over as superfluous and extravagant—are pre-eminent.

In France, as I have endeavoured to show, the liberality of succeeding Governments in recognising the claims of art has enabled our Gallic friends to obtain and maintain an artistic superiority, long the admiration of other countries, which is undoubtedly due to that wonderful state organisation, the Ecole des Beaux-Arts.

In the view of many architects the time is now fully ripe for founding an institution of a somewhat similar nature for the academic training of English architects, and I venture to suggest that, as this question of architectural tuition is one of great importance to us all, it behoves us to make special individual efforts to bring all qualified men within the ranks of the Royal Institute of British Architects, and thus enable the united energies of the profession to be directed towards the consideration of a properly devised and comprehensive scheme for the advanced professional education of its younger members.

ARCHITECTURAL SCULPTURE.

The following is part of a paper by Mr. Albert H. Hodge recently read before the Liverpool Architectural Society:—

"Architecture first called the art of the sculptor into life, shared with her the secrets of design, set the works of her creation in a proper setting, guided and directed her steps to a perfection seen in the Parthenon, almost beyond comprehension; and when the dark days came on the earth and the hand of man and the forces of nature were united against her and did their worst, we find, by the mighty shattered column, the ruined portico, the niche, and the Pylon, the priceless relics of an age when architects understood how, why, when, and where to use sculpture; and sculptors understood that to be lost in architecture was to be found in art.

It is surely a grave mistake to think of architectural sculpture as a form of decoration to be applied only to buildings, and as being secondary to the bust, the portrait statue, and the statuette. Each has its place in the world of utilitarian art, and in order to be beautiful must be subservient to the principles of architecture.

It is with sculpture, which is part of an architectural motive, that I prefer to deal to-night; sculpture, which is so closely allied to its setting and surroundings that to strip one piece of it is to rob the composition of a necessary "factor of scale," a feature so enveloped in its surroundings that it is

difficult to say which is architecture and which sculpture.

Scale in Sculpture.

We ask ourselves how are we to bring about this state of relationship, this oneness of mind and motive. The more I study the problem the stronger my opinion becomes that the greatest quality a piece of sculpture can have is "scale." Sculpture is simply a more intricate relationship of the same forms which go to make a fine piece of architecture, the flat surface, the round, and the hollow, and its first function must be that it is in scale with its surroundings, and its various parts must likewise be architectural, so that in itself it possesses the great quality of unity obtained by relationship of parts.

Architecture has evolved certain orders and relative proportions of capital, base, cornice, and balustrade; our sculpture must likewise fall into its place in a similar and true relationship, possessing and having throughout its composition architectural qualities in all ways harmonious with the whole façade. The great quality which gives scale to architecture is its utility in relationship to man, steps, balustrades, windows, doors, and all features which we naturally associate with the beings who built and use the building; and so sculpture, being a representation of man, is one of the most important factors of scale.

We ought to bear in mind that we enrich a moulding or capital not only to emphasise that part, but also to obtain breadth and simplicity for the plain parts. We cannot obtain simplicity without it. Counterfeit richness, we may get barrenness; to get great simplicity we must have some fine mouldings or sculpture to give scale. If we bear this in mind, no matter whether our sculpture be placed along the skyline or on the stylobate, we shall obtain true simplicity and bigness of scale, not bigness of size, often mistaken for bigness in scale.

Sculpture on Buildings.

Regarding the position and placing of sculpture on our buildings, in order to get the finest results the sculpture ought to be a part of the motive in the mind which conceives the façade from the beginning and not have the appearance of being added. It is one of the architect's strongest features, and so ought to have early attention. In the Parthenon the pediments were not an afterthought, nor the frieze an extra.

It seems to me that to obtain the monumental feeling we should have to look up slightly to the sculpture. This is very well seen in the Stevens monument, and always gives a feeling of serenity and dignity. We often experience this feeling when we meet a tall person, simply because we must look up to and be looked down upon by such a person. On the other hand, if we raise a little woman on a dais or throne she immediately becomes a queen. When using sculpture low down, more especially supporting figures or lions in immediate connexion with the building, it is, I think, advisable to put it severe or Egyptian in character, or we might say the Doric Order of sculpture.

Sculpture used higher up or on the skyline might be more playful, or of the Corinthian Order, always bearing in mind to become lighter the higher up we go and, like architecture, we shall obtain our Orders of sculpture.

The "Orders" of Sculpture.

In nature plants start with a stem, break into branches, stalks, leaves, and finally flowers. Figures pass through the same Orders of architecture so to speak. The same graduation of expressions ought to pervade our groups of sculpture; the centre of the composition ought to stand out immediately and proclaim itself; all subsidiary parts, although interesting in themselves, should lead the eye to the centre. The pediment of the Parthenon is a grand example of this. The sculpture of all this architectural composition has a graduation of interest to the culmination in the centre of the pediment.

The subjects of our groups of figures present so formidable a problem that I will pass it by with a few remarks. Subject can never make a great thing in itself, no matter how fine and flowery the story told; unless it possess scale, composition, flow of line, architectural and sculpturesque qualities it is so much waste material. A great thought told rightly is a complete masterpiece.

Having now fixed on scale and subject of our piece of sculpture, the various internal principles of design and treatment, so as to obtain the spirit of the architecture in our sculpture, have to be considered. The great principles of lines tangent to each other is surely the foundation of all great design where flow of line and relationship of surface are all important.

Lines of Grace.

If we consider the Iris or Victory of Samothrace or Pompeii, or any other flying figure, this principle is most apparent; all the lines of grace, movement, and opposition are found to be tangent. It is always good to return the flow of line back into the composition. This is noticeable in all the best work. If many lines run out of the composition the general effect is restless. Vertical and horizontal lines are all good, steadying the mass, drawing closer the union with the architecture. A very good means of obtaining this end is to use some of the mouldings of the building as bases, etc., in our work in accessories, such as thrones, pedestals, etc.

Great movement can only be got by steady motives adjoining, giving foil of an opposite motive, such as the figure with raised arm in the pediment, opposition of direction of movement. In the disposition of our masses in a space, in order to fill that space properly, it is advisable that the approximate centre of gravity of the mass be the geometric centre of the space. This, I think, specially holds good in spandrils. It is also advisable that the principal figures should have the broadest lights on them.

Perhaps this may be best demonstrated by a few references. Aphrodite from Syrene shows us the beauty of radiation. This truly beautiful fragment might be fine Gothic, classic, or Japanese. Mausoleus shows us a severer type of drapery still following the same principles. All draperies, be they light or heavy, upon analysis are found to be the same in detail. Perhaps the Fates from the Parthenon is the finest piece of sculpture in drapery; all is divided into the most beautiful proportion of masses.

Let us consider the Demeter. One cannot point out the beauties of such a work; before it we are silent. Still hidden beneath the glamour we come to the foundation—a thorough knowledge of architectural principles.

Relief.

The treatment of relief is a subject on which many differ but few thoroughly understand. To obtain the most architectural results our work must have decided outlines, and any tendency to lose it in the background be guarded against. If the work will not stand outlining strongly, then the shapes are bad. Reliefs are simple drawings in stone and should be silhouetted, more or less. Violent foreshortening should be avoided.

The finest reliefs, as those of Greece, always have this restraint, this feeling of silhouette, giving at once the suggestion of a band of ornament. We see it admirably carried out in the Pan-Athenaic frieze on the Parthenon; parts are constructed on the wave ornament and parts on the fret. The whole motive becomes slower and steadier as it approaches the main entrance, and finally comes to the assembled gods which are seated.

Another principle used in the frieze is what one might call the superimposition of one figure and group on another in order to obtain great depth and at the same time keep a strictly architectural spacing and solidity. This is used with great effect in Velazquez's picture of "The Surrender of Breda" in Madrid. The Romans used it also in their reliefs. Donatello used it in his relief work, also the Assyrians.

The Great Principles.

We ought to realise the limitations of sculpture and architecture and not make our buildings represent faces and trees and our sculpture life models. We must realise to materialise, treat everything in its proper manner; our sculpture must look as if it were cut out of, not built up of, small pieces of stone. Egyptian work owes its austerity to

The Three Fates.

(From "Sculptures of the Parthenon"—British Museum.)

this quality; modern French work looks as if it were clay modelling. Straightness of drawing and trueness of surface are qualities always found in the work of a master; rough lumps of stone left to make the adjoining parts look fine are simply tricks unworthy of sculpture and outside its limitations. Style in our work is simply the outcome of true form. All such works as the finest Gothic carving, the finest Indian, the finest Chinese porcelain, Greek, Roman, and Arabesque works are remarkably similar, simply because, after all, there is only one style and that is true representation of form. It is only by representing the great masses that the sculptor can get any true value of the finest fabric in nature into his work, and herein architectural principles are most valuable to give to his work style and sculpturesque rendering.

The Greek period of the time of Pericles is perhaps the finest in sculpture. If we examine the Parthenon work and taking the draperies of their figures consider the sections through them, they will be found even in their most intricate parts to have a truly finished and sweetly flowing section line recalling to mind such as we often get in the best Gothic jamb mouldings. These parts, which were in shadow, were carried out with scrupulous care; the deepest cut and hollows were rounded off to a beautiful section similar to the flute of the Doric column. By so doing a depth of shadow and truthful lighting is obtained, which is impossible to get by breaking up to the surface of the half-tones by rough or unfinished work. This I believe to be the great desire behind all their architectural figure work, which compelled them to finish their work all round thoroughly, even although parts of them could never be seen from below; such parts, if not executed, would undoubtedly have detrimental effect on those which are seen, simply because the eye is so accustomed to the effect of true reflected light on a figure in all positions that any unshaped or rough part left at the back must convey an unpleasant impression.

I have often experienced this when I have carried the front of a figure too far without modelling the back. The result becomes more apparent upon examination of the outline. This, I think, is a good thing to remember when we are doing figure work in pediments or niches, or any figure work placed against a background where reflected light will play a great part in the whole effect. The Pan-Athenaic frieze is a striking example of work in shadow. It is so exquisitely wrought that we may look at it any way, and it is always truthful in value. As far as we know, this magnificent work was never intended to be seen other than in a reflected light from the stylobate below.

Materials.

Of the execution of sculpture work in various materials, such as marble, bronze, granite, stone, terra-cotta, and wood, I would remark that a piece of sculpture having all the qualities of form, expression of character and scale is beautiful in any material. Theseus is quite as fine in a cast of plaster as in the original marble, and would be equally fine in bronze. The antique sculptors did not differentiate in their generalities when using marble and bronze; in detail they chased the bronze in finer lines of lesser detail, the metal lending itself to the carrying of such parts to a degree of intricacy. So it follows, I think, that the limitations of a material govern the degree of height to which it may be carried in execution. Bronze can be carried further than stone or marble or wood, marble further than stone or granite. A common mistake is to make the bronze markings deeper and everything courser. I do not think it is advisable to use bronze where we can use stone and the subject is suitable to be executed in stone. We shall so avoid dark patches on our buildings, as bronze work goes black in our cities.

In ornament the principles of design are applicable as in figure work; more especially is it desirable to carry the surrounding mouldings into the composition. As it is always advisable that the main lines of the elevations of a great scheme echo the lines of its plan, so should the same feeling be carried through all the detail in order to obtain unity.

In conclusion I must point out the great loss to sculpture by an estrangement from architecture; aye, and the loss to architecture by an estrangement from sculpture. The modern architect can be excused if he find not time to study sculpture and all its little ways; he is so engrossed with an Herculean problem, including sound, light, and heat, engineering, ferro-concrete (yet to be used in sculpture), and town planning, that sculpture may disappear never to rise again. But we must not have it so. I would earnestly appeal to all architects to draw closer the bond and thoroughly grasp the importance of the point at issue. Architecture reached its highest flights when she used sculpture in its proper way. Remember, architecture is the art of the people; our cities, our markets, our business places owe their existence to her. Our commercial man of to-day has not much time to grasp the subtleties of painting or music, but he is brought into touch with architecture at all points.

Monumental Art.

Monuments should rear their heads proudly in our thoroughfares. They are generally too low and should have a proper setting. It is not sufficient that they be placed on an island in the thoroughfare, or planted in a park, or dumped, as they are in St. George's-square, Glasgow, as if they were ordered by the dozen and the case had broken when delivering them. When so misplaced they convey the impression of a cemetery. Let us remember, monuments are not for the dead, but for the living, and should encourage, by their expression of design, the passer-by to follow in the steps of the hero.

The central figure in a monument should not be more than a few feet higher than the rest of the figure work. The Prince Consort in the Albert Memorial in Hyde Park is too big and dwarfs the whole scheme. A monument will gain in effect by being axial to some building or space, the scale of which should be carried into the monument. By so doing it will become a part of the town plan. Sculpture work so embodied gains tremendously in effect; isolated monuments placed anyhow are not picturesque, but chaotic.

Fountains.

Fountains in our cities are conspicuous by their absence. Nothing is more refreshing to the tired and worried business man than to pass by or look at spouting water, or, perchance, to see a thirsty horse or dog quench its thirst in the overflow. As I have pointed out, sculpture estranged from architecture cannot advance. It can only reach its full height by a school of sculptors working under the influence and guidance of architecture, it being the only force which can weld sculpture into a national school, direct its path, and keep it within its limitations. Architecture without sculpture can be fine; architecture with sculpture is supreme, one art.

Architecture, the art of the people, colossal in her schemes, beautiful in her parts, appealing to all by her bigness, her unity, and utility. Have this ever before us; we may not attract much notice by doing works in a manner already used by great masters, but we shall go to our graves knowing that we

Iris.

(From "Sculptures of the Parthenon"—British Museum.)

sought the truthful in art, and our name shall be revered by future generations. Better far to be a star, even of the second magnitude, in a galaxy of greatness in art, than a flame tossed hither and thither in a storm of architectural disputations. Like St. Paul, let us say, "This one thing I do, I press forward to the mark of my high calling."

THE ARCHITECTURAL ASSOCIATION VISITS:

THE WESLEYAN CHURCH HOUSE, WESTMINSTER.

On the 17th inst. the second visit was made of members of the Association to this building since its commencement, and there was a large attendance.

Externally the final form and detail may now be judged with certainty. Messrs. Lanchester & Rickards are the architects, and they have taken the opportunity of producing a mass and grouping in which the three dimensions all play their part. Some criticism was directed against the "military" nature of the sculptured ornament about the building, but in this connexion it may be interesting to learn that the injunction, "Put on the whole armour of God," supplies the *motif*.

Attention was chiefly directed to the internal construction, in reinforced concrete on the Kahn system, as to the details of which the clerk of works, Mr. Howell, gave some interesting particulars while conducting the party over the building. The forms for the springing of the great dome are now in position, and the barrel vaults which abut it are already partially formed. The building illustrates what is possible in floor and vault construction by the new material, and in some of the rooms where the centring has been struck a fine (though temporary) effect is produced by the bare bones of the construction. This is particularly noticeable in the large tea-room, where the rough outlines of the future detail have been formed in concrete, giving a sort of "post-impressionist" effect in architecture. The effect of any series of concentric curves on plan may be learnt from observation of the gallery tiers and of the main staircase, which, unobscured at present by any balustrade, appears to pour and swirl around the elliptical vestibule. Darkened by scaffolding, and encumbered by timber stagings, there is a savour of Piranesi's Carceri, as more than one visitor remarked.

The arrangements of the main hall are designed with the double object of concerts and meetings, and the platforms will accommodate an orchestra of 100 and a chorus of 300. No effort has apparently been spared to render the arrangements musically convenient and acoustically successful, and the architects acknowledge the receipt of valuable advice from Sir Charles Stanford in this direction. The platform for speakers will be a separate section to that intended for musical performances, though both command all portions of the hall. At the rear of the platform are vestries and a reception-room. The planning of the ante-hall and exits is simple and direct; it is calculated that the hall will be emptied on emergency in less than three minutes.

The hope of those who visited the building was that it may not long remain without the towers and crowning part of the east front.

THE BUILDERS' BENEVOLENT INSTITUTION.—As a result of the generosity and energy of Mr. William Willett (President) and the assistance of the Duke of Westminster, Lord Howard de Walden, and other friends and supporters, the Committee of Management of this Institution have been enabled to add six more pensioners to the list, and to avoid the undesirable process of appealing to a contested election, which involves so much trouble and expenditure upon applicants. All the really eligible applicants were elected. The Committee wish to thank very heartily those who have generously contributed, especially when the depression in the building and allied trades is taken into consideration.

ARCHITECTURAL SOCIETIES.

The Manchester Society of Architects.

In a paper read before the Manchester Society of Architects on the 14th inst. Professor Capper said that the idea of building a great Roman Catholic cathedral in London might be said to date from the restoration of the hierarchy, with the appointment of an Archbishop of Westminster, in 1850. But it was not until the time of Cardinal Vaughan's prelacy that Mr. J. F. Bentley was, without competition, entrusted with the great work of designing the building. Cardinal Vaughan laid down certain conditions as to size, space, chapels, and the style of the building, but otherwise Bentley had a free hand in the design. Owing to its promixity to Westminster Abbey, and to the existence of a great classic cathedral, such as St. Paul's, not far distant, it was considered desirable to avoid competition with either, as far as style was concerned, although Bentley had a decided leaning towards Gothic. Cardinal Vaughan, however, selected Byzantine, and Bentley felt that his duty was to accept the style (which he called Primitive Christian) and adapt it to congregational needs. Almost immediately after his appointment Bentley left for a tour of the domed churches of Italy, but, curiously enough, did not proceed to Constantinople.

Professor Capper then traced the evolution of the domed church from the simple nave with two or three domes, as found in the South of France, to the Greek Cross type with five domes, as at St. Mark's, Venice, and proceeded to explain how Bentley's final design was arrived at by plans showing three different stages in its development. The first scheme showed aisles axial with the eastern chapels and two campaniles at the west end. In the second the nave arcade was continued across the transepts, which greatly helped the continuity of the interior, and one of the campaniles was omitted at Cardinal Vaughan's request. The third and final plan showed the addition of Sanctuary aisles and a narthex and the removal of the campanile to the north-west. Some very interesting diagrams showing the construction of the building were explained by the lecturer, who pointed out that externally the main flying buttresses were placed opposite the centre of the domes, and not opposite the piers, as one would expect. Externally, Professor Capper said, it was essentially a brick church, but he thought that the effect of the stone bands was perhaps rather too stripey, until they had toned down with age. The site was much too confined to get a proper view of the building. Mr. J. F. Bentley died suddenly on March 2, 1902, and it was not until January, 1903, that the bronze cross was fixed on the campanile. In conclusion, Professor Capper compared the cathedral with that of Alby, a brick building of the XIIIth-XIVth centuries, with a vaulted roof of 60 ft. space and a dignified and impressive exterior, which, he thought, was a more restful treatment than that adopted at Westminster.

Liverpool Architectural Society.

A meeting of this Society was held on the 5th inst., when a paper by Mr. Albert H. Hodge was read, entitled "Architectural Sculpture." A vote of thanks to the lecturer was proposed by Professor Adshead, seconded by E. P. Hinde and supported by L. P. Abercrombie, A. A. Watts, Professor Reilly, and Gilbert Fraser. Some portions of the paper appear on another page of our issue this week.

The third members' meeting of this Society was held at the rooms of the Society, 13, Harrington-street, on Monday, when a paper by Dr. T. W. Naylor Barlow, M.R.C.S., L.R.C.P., D.P.H. Camb. (Medical Officer of Health for the Borough of Wallasey), on "The Effect of Defective House Drainage on Health," was read.

In the course of his remarks, the lecturer, in speaking of drains, said: Before the discovery of the typhoid bacillus in 1880 (Eberth) and 1884 (Goffky) nearly all epidemics of typhoid were in a measure ascribed to sewer or drain gas. That was before it was found that the disease was capable of being carried by water, milk, flies, and dust. It is to this aspect of the question that I desire to draw particular attention. I do not think there is a single epidemic in which any evidence, direct or circumstantial, has been adduced in favour of the sewer and drain gas theory. It seems to have been a rule, "If you cannot find anything else, blame the drains." Every layman, and a large majority of medical men, have acquired the habit of looking upon defective drains as the *causa causans* of not only the cause of typhoid and diphtheria, but possibly of scarlet fever also.

A vote of thanks to the lecturer was proposed by Mr. T. T. Rees, F.R.I.B.A., and seconded by P. C. Thicknesse, F.R.I.B.A., and supported by Mr. Gilbert Fraser, A.R.I.B.A.

Nottingham Architectural Society.

A special meeting of the Nottingham Architectural Society was held at the Society's rooms, No. 64, St. James'-street, Nottingham, on December 16. An invitation had been sent to all architects in Nottinghamshire and Lincolnshire, and there was a very good attendance, gentlemen having come from all parts of the province.

The President, Mr. Robert Evans, jun., occupied the chair and briefly introduced Messrs. Hubbard and Cross, Members of the R.I.B.A., who had come down specially from the Royal Institute to explain the scheme.

Mr. Hubbard, a Member of the Council of the R.I.B.A., pointed out that the advantages of Registration would be that all architects would be united by an *esprit de corps* that would prevent the present undercutting of each others charges. By Registration their scale of fees would be recognised in the courts of law, and the architectural work now done by builders and others would be done by trained architects.

Mr. Hubbard explained that, although difficult to examine in art, the Royal Academy, the R.I.B.A., and similar institutions of this and other countries have held examinations in art for many years past, and no one has complained that the result has not been satisfactory.

The Royal Institute were anxious to enrol all qualified practising architects before March, 1911, as Licentiates. A Bill would then be presented to Parliament, and, if obtained, any other person desiring to practise as an architect would then be required to pass an examination.

Mr. Hubbard informed the meeting that the Society of Architects (whom he recognised as the pioneers of the movement) had been invited to send members to a joint conference at the Royal Institute to consider the framing of the proposed Bill.

Mr. Cross, a Vice-President of the Royal Institute, urged that upon a Registration Bill depends the well-being of the architectural profession and the well-being of the R.I.B.A. By joining the Royal Institute as Licentiates the profession would be welded together for mutual assistance, whereas at present it is somewhat disconnected. By a personal connexion with the Royal Institute assistance would be obtained upon matters of professional practice, etiquette, and payment of fees. The splendid architectural loan library would be accessible to every practising architect in the kingdom, and when in London every architect would have a home to go to where he could meet his professional brethren.

Several questions were asked by Messrs. Mettham & Bond, of Grantham, Mr. Moss, of Mansfield, and Messrs. Bromley, Gleave, & Dale, of Nottingham, and others, and were carefully and fully answered by the delegates, who explained that this object in visiting the different societies was to obtain every information as to difficulties and differences in practice, so that they might be considered in framing the Bill. At the close of the meeting the majority of those present showed their support by filling in application forms.

The thanks of the meeting were accorded the Council of the Royal Institute for sending delegates, and Messrs. Hubbard and Cross were also heartily thanked for coming down and so fully explaining the scheme.

Glasgow Institute of Architects.

A quarterly general meeting of the Glasgow Institute of Architects was held recently in the Secretary's chambers, 115, St. Vincent-street, Mr. John B. Wilson, F.R.I.B.A., President, in the chair. Reference was made to the death of Mr. David Thomson, who was one of the original members of the Institute, having joined in 1868. Mr. Arthur D.

Hamilton was elected a Fellow of the Institute. The Secretary submitted a report on the matters which had been dealt with by the Council since last general meeting. A proposed scheme of architectural education in the Glasgow School of Architecture was being considered by the Council. It had been found impracticable to arrange for the proposed exhibition in Glasgow of the drawings shown at the Town Planning Exhibition in London. The Council had called the attention of the Fine Art Committee of the Scottish National Exhibtion to the omission of architecture from the proposed exhibits, and the Committee had agreed to include architectural designs among the exhibits. The Council, as trustees for the Alexander Thomson memorial, had arranged a programme for the next competition, the drawings for which are to be lodged with the Secretary on December 29, 1911. The subject of competition is a design for a bridge. The President has made arrangements with the following gentlemen to give lectures before the Institute, viz.:—Mr. J. A. Gotch, of Kettering, on January 27; Mr. A. W. S. Cross, M.A., London, on February 23; and Mr. Oldrieve (on the subject of Glasgow Cathedral roof) on March 16. The matter of bringing the subject of Licentiateship of the R.I.B.A. before the members of the Institute and other architects in the Institute's province was fully discussed, and it was agreed that this could be best accomplished by issuing a circular calling attention to the desirability of all architects who are not already members of the R.I.B.A. and who are eligible for admission as Licentiates joining this class, and pointing out that the period during which applications can be received expires on March 1, 1911.

Royal Institute of the Architects of Ireland.

A special meeting of the Council of this Institute was held at 31, South Frederick-street on Monday. The President, Mr. F. Batchelor, F.R.I.B.A., was in the chair, and there were also present:—Messrs. C. H. Ashworth, L. O'Callaghan, R. Caulfeild Orpen, J. H. Webb, F. Hayes, G. F. Beckett, A. E. Murray, H. Allberry, G. P. Sheridan, and C. A. Owen, Hon. Secretary. A considerable amout of correspondence was dealt with. The Hon. Treasurer, Mr. Frederick Hayes, submitted his report and statement of accounts for the year 1910, which were approved and passed. Mr. Ashworth submitted the annual report of the Professional Practice Committee, which was approved. The Council considered and approved a scheme for the standardisation of plumbers' work proposed by the Plumbers' Company.

Guild of Architects' Assistants.

A meeting of this Guild was held at Prince Henry's Room, Fleet-street, on December 13, Mr. J. H. Elder Duncan (Vice-President) in the chair. The Hon. Secretary read the correspondence which had taken place between the Guild, R.I.B.A., and the Society of Architects on the question of the inclusion of the assistants' interests in the provisions of the proposed Parliamentary Bills. Two proposals were suggested by the Guild (1) Registered practitioners to employ only registered assistants, and (2) restriction of the number of unpaid assistants and pupils in a registered practitioner's office. These proposals have been referred by the R.I.B.A. and the Society of Architects to their respective Sub-Committees dealing with the Bills.

Rational Building.

Mr. S. Douglas Topley, A.R.I.B.A., then read a paper on "Rational Building," in the course of which he drew attention to the deficiences of the office-trained architect, too often a slave of his drawing implements. He thought the position of string-courses on elevations was frequently determined by that of the T-square on the board, and roof pitches governed by the set-square. He quoted an account of a meeting at the R.I.B.A. thirty-five years ago, in which the author, omitting names, described how the discussion circled round an assertion that lines one-sixty-fourth of an inch in thickness produced the best results, and thought they were hardly likely to produce the western elevation of St. Paul's. Art in building depended upon sound and reasonable construction. Photographs of work by Mr. W. Wier Schultz and Mr. Curtis Green were handed round to support this statement.

Mr. Topley favoured contract by schedule of prices, which enabled the architect to vary and improve the structure as it progressed. He recommended a revision of architectural training to include three years' workshop training, and suggested a certificate of the R.I.B.A. Final Examination should be evidence that the holder had mastered at least one craft. He looked forward with perfect confidence to the time when the term "architect" would apply only to that man who, having acquired a thorough practical training in the workshop and a sound theoretical training in the college, went to his one job every morning and worked side by side with his assistant craftsmen.

Difficulties of the Quantity Surveyor.

Mr. J. H. B. Scott followed with a paper on "Difficulties of the Quantity Surveyor in Relation to the Architect." He said that quantity surveyors were greatly and unnecessarily annoyed by the "alleged" specifications of architects, and suggested that if the architect supplied the quantity surveyor with a general statement of requirement, accompanied by copious notes on the drawings, which, with the answered queries naturally arising from the taking off, would form sufficient basis for the specification, for the writing of which the quantity surveyor should be paid in addition to his legitimate charges for the bills of quantities. But, as the specification is included in the architects' duties, Mr. Scott hesitated to suggest that the architect should pay for it out of his commission. The use of a "stock" specification was particularly deplored, and also the under-estimation of work by an architect, as also incomplete drawings and amendments thereto. The lame attempts of some architects to adjust the final account, and the subsequent appeal to the quantity surveyor to reassemble the *débris*, was movingly described. The lack of position of the quantity surveyor in the public eye, whilst the names of architects, builders, and even clerks of works basked in the sunshine on the monumental brasses affixed to buildings, was much lamented, and, in conclusion, the lecturer trusted that so important a factor in the production of architecture would obtain due recognition in the future.—Mr. J. V. Hibbert, F.S.I., proposed a vote of thanks to the readers of the two papers. He took exception to the practical side of the educational programme proposed by Mr. Topley. Design is imaginative, and without imagination there can be no architecture. He thought draughtsmanship overrated, and that public competitions fostered fine draughtsmanship but doubtful architecture. Mr. J. F. Burkinshaw seconded. He said quantity surveyors often allegally poached upon the architects' preserves by making both drawings and quantities without a qualified architectural assistant, and they often caused unnecessary friction between assistant and principal.

ENGINEERING SOCIETIES.

The Society of Engineers (Incorporated).

The first annual general meeting of the Society of Engineers (Incorporated) was held on the 12th inst. at 17, Victoria-street, Westminster, Mr. Diogo A. Symons, M.Inst.C.E., President, in the chair. The result of the postal ballot for the election of Council and officers for 1911 was announced as follows:—

President: F. G. Bloyd.

Vice-Presidents: J. Kennedy, A. Valon, H. C. H. Shenton.

Members of Council: Professor Henry Adams, C. T. Walrond, Norman Scorgie, Percy Griffith, T. E. Bower, Henry C. Adams, J. R. Bell, S. Cowper-Coles, Frank Latham, H. P. Maybury.

Associate Member of Council: E. Scott Snell.

Hon. Secretary and Hon. Treasurer: D. B. Butler.

It was announced that the Council had awarded the following premiums in respect of papers published in the *Journal* during 1910:—

The President's Gold Medal to Mr. W. C. Easdale for his paper on "Sewage Disposal Ideals";

The William Clarke Prize, value 5*l.* 5s., to Mr. S. M. Dodington for his paper on "Public Slaughter-houses";

The Bessemer Premium, value 5*l.* 5s., to Mr. C. W. V. Biggs for his paper on "The Inspection and Testing of Engineering Materials and Machinery";

The Nursey Premium, value 3*l.* 3s., to Mr. Henry C. Adams for his paper on "Current Professional Topics";

A Society's Premium, value 3*l.* 3s., to Mr. A. H. Allen for his paper on "Electricity from the Wind";

A Society's Premium, value 3*l.* 3s., to Mr. C. R. Enock for his paper on "Engineers and Empire Development."

The Chairman presented the Report of the Council, which showed that the formation of the Society, by the amalgamation of the Society of Engineers and the Civil and Mechanical Engineers' Society, had been fully justified by the success of the first year's work. Details were given of what had been accomplished and of the matters still occupying the Council's attention. The Report stated that the incorporated Society combined the prestige of an old foundation with the strength and vitality of a modern institution, and concluded by thanking those who had given their active or moral support to the Society during the past year.

Messrs. W. B. Keen & Co. were appointed to make up and audit the Society's accounts during 1911.

Votes of thanks to the Council and officers for 1910 and to the scrutineers were passed and acknowledged.

EAST ANGLIAN ROOD-SCREENS AND THEIR PAINTINGS.

At the Northern Architectural Association, Newcastle, on December 14, Mr. C. H. Charlewood, F.R.I.B.A., in the chair, Mr. William Davidson read a paper on this subject. The lecture was illustrated by numerous coloured drawings, photographs, and ninety lantern slides.

Mr. Davidson, who has been making a special study of ecclesiastical architecture and decoration in East Anglia for the last ten years, opened his lecture by emphasising the great richness of East Anglia in ecclesiastical art of all kinds, but more especially the decorative art of its rood-screens. After indicating roughly the origin and development of rood-screens, he described in detail the leading screens in the county, analysing the main features in their construction and

Dado Panelling of Rood-Screen, Ludham Church, Norfolk.

design. The period of greatest activity, he stated, was between the years 1480-1520. At the Reformation much of the work was destroyed, and even in comparatively recent years much damage had been done by renovating and repainting. The mediums employed by the mediæval craftsmen in the screen work—viz., oak, lead, gesso, glass, tempera, oil paint, etc.—were described, and the place and value of gold in the mediæval decoration was pointed out. From his close and exhaustive study of the screen painting Mr. Davidson concluded that the artists were natives of the county, as the work showed so unmistakably the influence of the climatic and geographical conditions which exist in this part of England. The best painted screens were situated in the marshland districts—Ranworth, Barton Turf, Ludham, etc. "The general formation of the land, with its marshy pools, stretches of broads, shaded by woodland and reeds, over which the morning

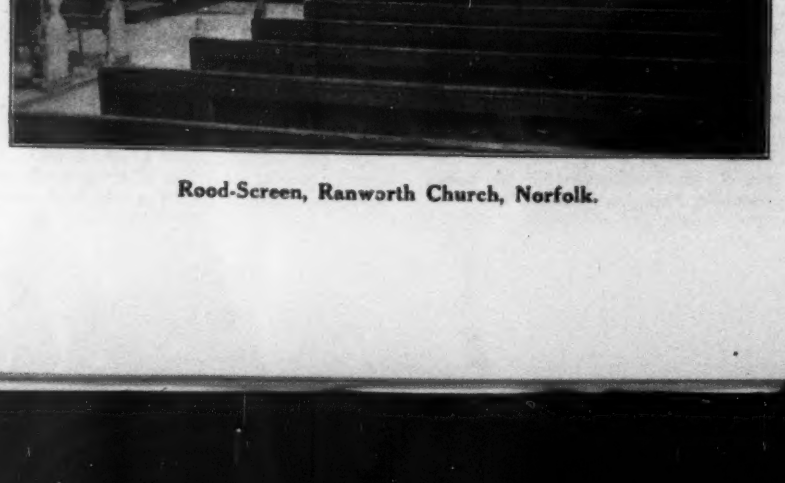
mists linger at the approach of dawn, and which reflect the glory of a setting sun, is just such as we might expect to produce a great school of colourists. With a misty

Canopy of Rood-Screen, Ranworth Church.

background, and in the brilliant sunlight, the red of the foreground poppies, the green of the grass, and the gold of the corn blaze out with dazzling brightness; and this combination of colours, satisfying the visual sense of completeness, was no doubt adopted by the artist as the main basis of his colour scheme. There are few variations to this scheme." The alternating scheme of red and green with an all-over use of gold was the main feature in East Anglian mediæval decorative art. The decorative value of rood-screens as church furniture was clearly illustrated by several excellent views of church interiors from Norfolk and Suffolk, and the harmony existing between the architecture and decoration was strongly emphasised, the design, drawing, and colour being such as enhanced the architectural detail and general effect. The great unity which existed in the mediæval church was shown as being carried out in the tiles, wall painting, glass, roof, altar, and in every part of the church, showing that the mediæval builders had in view a culminating scheme both in composition and colour. In discussing the figure paintings and their emblems the screen at Ranworth was described in detail. Particular attention was drawn to the figures of St. Barbara, St. George, St. Michael, and the head of St. Philip. At Cawston St. Philip, St. Matthias, and St. Matthew were mentioned as fine examples of the work of a portrait painter. At Barton Turf St. Raphael was described as exquisite in drawing and colour. The existence of foreign saints on many of the screens was no evidence, in Mr. Davidson's opinion, for the assumption that foreign artists were employed in the work, as the saints were universally recognised as belonging to the whole Church, even the patron saint of England, St. George, being a native of Cappadocia. The origin of the figure painting, the lecturer considered, was to educate the people (few of whom could read) in the life-history of the saints. Their decorative value being perceived, the work was then continued because of decorative effect. The screens of Ranworth, Cawston, Barton Turf, Worstead, Ludham, Trunch, and Marsham were described in detail, while many of the lesser screens were referred to, and slides shown of many figure panels and details. Chapel screens and western gallery screens were mentioned and illustrated. In classifying the paintings four distinct types—viz., archaic, conventional, decorative, and naturalistic—were indicated. The first three types were shown to be the most appropriate for decorative purposes, especially when associated with Gothic architecture. The foreign influence found on such screens as Ranworth, Cawston, and Barton Turf was suggested as being due possibly to the introduction of the robes of the clergy from Italy, and to the intercommunication between the Flemings and this country, and through the Flemish and German schools from North Italy. Many artists were employed in the work, as the best screens were distinctly the work of different men, and showed very distinct individuality. Mouldings and floral ornaments were apparently copied from stock pattern-books, as much repetition was to be found. Mr. Davidson

Detail of Screen, Ranworth Church.

considered that Ranworth, on account of its special features (the double canopy, parcloses, and reredoses) and the perfect harmony existing between its architecture and decorative composition and detail, was the finest painted in England, though at Cawston the mouldings were of a finer proportion and at Barton the technique of the painting of heads of figures was finer. Some excellent views were shown giving details of gesso work at Cawston and Southwold, and also showing the richness of the patterns on the robes of the saints at Ranworth, Cawston, and Southwold. Several fine examples of painted roofs, fonts, and pulpits of the same period were shown and described. In touching on the condition of decorative art of the present day, the lecturer considered that the present school of painting was too pictorial, and lacked the imaginative and decorative qualities necessary for association with architecture, the true principles of the application of colour architecture not being understood. He strongly advised architects and decorative artists to study the principles illustrated in the ecclesiastical art of East Anglia.



Rood-Screen, Ranworth Church, Norfolk.

THE SOCIETY OF ARCHITECTS: A LONDON IMPROVEMENT SCHEME.

THE following is part of a paper, by Mr. G. A. T. Middleton, A.R.I.B.A., past Vice-President of the Society of Architects, read before the Society on Thursday last week:—

"The problem of the improvement of London is one which has been claiming more attention every year for a long while past. In particular it has become evident to all observers that the means of communication between the north and south sides of the river are insufficient. Whatever is done, it is necessary that the south of London should to a certain extent be replanned. It requires something more than the erection of an additional bridge and its approaches to do what is required. In addition to St. Paul's Bridge, there has been a good deal heard of late of the need of an extra bridge either at Charing Cross or the Temple.

Mr. John Burns, in his speech at the Guildhall, at the opening of the recent Town Planning Conference, stated that he would like to see not only Charing Cross railway bridge done away with and a station put on the south side, but that he would dearly love for the Cannon-street and Blackfriars railway bridges to be similarly treated. It was fairly obvious, however, that he did not think the idea to be practicable.

Its practicability is a matter which demands a considerable amount of attention.

A High Level Roadway.

The three bridges in question all serve termini of the same railway company, the South-Eastern and Chatham. At the time when they were built the South-Eastern and the Chatham and Dover railways were distinct and in competition for the continental traffic by the short crossings *vid* Dover and Folkestone. Each of them was anxious to have both a West-end and a City station. At that time it was important that each should serve the north side of the river with ease. The two companies have now combined, and it must be a serious encumbrance to them to possess, besides their West-end station at Victoria, three other termini, each involving an independent staff, the up-keep of a bridge, and a large amount of unnecessary train mileage. Even five years ago, before motor traffic had developed to the extent to which it has now, there was a considerable amount to be said in favour of the north river stations which does not apply at present. Provided that a good central terminus could be built on the south side, readily accessible by main roads, both from the City and the West-end, the railway company would gain rather than lose by the change. Fortunately, there is a way of doing this which has been provided by the railway itself, in not merely an economical manner, but in a way which should be actually profitable to the company most concerned. A high level road, carried upon arches, already exists across South London from Charing Cross to Cannon-street. Railway metals are laid down on it at present, but it would not be at all a difficult thing to replace these by a highway, forming a great circular road, 80 ft. wide, particularly valuable for rapid motor traffic, and with debouches so arranged as to connect it at all important points with the main highways of South London.

The construction of this high level roadway

would involve the destruction of both Charing Cross and Cannon-street railway stations and their accompanying hotels. A new terminus would have to be provided to replace them. The best position for this would undoubtedly be close to the Blackfriars-road, where the higher level line from Holborn Station crosses the present loop line from Charing Cross to Cannon-street. Thus one great terminus would replace the present three at Charing Cross, Cannon-street, and Holborn, the greater proportion of the traffic to which would almost surely be retained owing to the ready means of reaching all parts by motor-bus which the new road would provide.

It would, however, be necessary at some expense to divert the main South-Eastern line at New Cross and raise it so as to pass over the Brighton line, and then connect it across to the new station. This would render the present London Bridge Station of the South-Eastern and Chatham Railway unnecessary, and the metals between it and New Cross of no value. But the London, Brighton, and South Coast Railway is badly in need of both more station accommodation and more metals, which could be provided by allowing that company to use the present South-Eastern metals, and to build a new station on the circular road, which would serve it a great deal better than the present London Bridge Station is served.

A third railway whose interests would be involved is the London and South-Western. The new circular road would pick up Waterloo Station on its route, and provide a much-needed high level approach to it, easily reached by motor-bus or taxi-cab from the City at Cannon-street, the north at Holborn, and the west at Charing Cross.

Thus three great termini, near Waterloo, Blackfriars, and London Bridges, would now be located on the new circular road, and each be at its level, as the Waterloo terminus is already. The greatly improved means of intercommunication thus provided between them should be equally advantageous to all.

Improvements at Charing Cross, etc.

Considering the scheme in somewhat greater detail, it will be obvious at once that many architectural opportunities present themselves. Charing Cross Station and its hotels would give way to a square, with probably a new hotel along one side of it and fine shops along the other. As a considerable number of houses to the west of the present station belong to the railway company, it might be possible to include them in the area dealt with. The railway bridge, as it stands at present, is certainly not a thing of beauty, yet anyone who has studied it must recognise that there would be no great difficulty in so encasing both the piers and the girders with concrete, and facing this with stone, as to convert an eyesore into something which was at least dignified and worthy of the river. The external girders need not be interfered with, though probably the other main girders would have to be replaced by new ones of a different form, again imbedded in concrete, so as to form the front of shops which would face the roadway, a few gaps being left here and there to enable pedestrians to obtain a glimpse of the fine vistas along the river. When Waterloo Station is reached another open space could be provided which ought to be capable of architectural treatment. At Blackfriars there would be a great architectural opportunity provided, where the road from Holborn would cross at its high altitude over the circular road, close to the new terminus of the South-Eastern and Chatham Railway.

The terminus of the Brighton line at London Bridge would afford yet another opportunity, especially if a debouche were made from the new roadway to the foot of London Bridge, on the north side of Southwark Cathedral, which would thus be opened up, and if the present warehouses and wharfs along the riverside were replaced by a great hotel and an embankment.

Cannon-street Railway Bridge.

Cannon-street railway bridge would be dealt with in the same way as that at Charing Cross, and the station opened out in a somewhat similar manner, with hotels, shops, and offices erected on either side of the broad approach thus formed. There might be a little trouble here in connexion with the Underground station, but for the fact that it is an unnecessary station in any event, owing to the proximity of the Mansion House Station. Here, however, if the advantage of the bridge is to be felt to the full, something serious would have to be done. An approach to it would have to be provided from the north, and not alone from Cannon-street. If it were attempted to do this by widening Walbrook to the full width of the present space to the west of the Mansion House, the destruction of the Church of St. Stephen, Walbrook, would be involved, and, considering that this is one of Wren's masterpieces, nothing of the sort could be contemplated. Similarly, to widen St. Swithin's-lane would involve the destruction of St. Swithin's Church. Nor would either of these alternatives provide a direct approach to Cannon-street Bridge, nor greatly ease the communication on the north to the junction of Prince's-street, Threadneedle-street, and Cornhill. This is only to be obtained by cutting a new road from Cannon-street to the east of the Mansion House, which would be thereby opened out to view as it never has been in the past. It would be an expensive thing to do, as Salters' Hall and two banks, to say nothing of less valuable property, would be destroyed. New sites for these would have to be provided and new premises built. As, however, the provision of the new road bridge at Cannon-street would do away with the necessity for the St. Paul's Bridge, it is perhaps not too much to ask that the cost of this improvement should be borne by the City of London.

The Gain to London.

Finally, what would be the gain to London? There would be three new bridges provided between the north and south sides of the river, where the demand is at present for one. These bridges would be of such width as to ensure a sufficiency of intercommunication for the next hundred years to come. There would be a fine roadway connexion from north to south and another from east to west, linking up all the main roads on both sides of the Thames, adding immeasurably to the possibilities of the architectuarl treatment of our great city, and providing for its growth, as a business centre, over an area in the south which is at present a maze of slums. But the beauty of the whole thing is that the necessary roadways already exist in the main, and, although the subsidiary roadways and the debouches are valuable and perhaps essential to the scheme, they could be easily provided."

FOREIGN AND COLONIAL.

Building Material, etc., Switzerland.

The following items are extracted from the Swiss Federal Budget for 1911, published as a supplement to the "Feuille Fédérale Suisse of November 30:—

Department of the Interior—Direction of Federal Constructions: Building construction, 1,260,140 frs., of which 381,040 frs. is for the completion of the new post and telegraph office at Lugano.

Department of Posts and Railways—Telegraph and Telephone Administration: Purchase of material and tools for construction and extension of lines, 4,166,000 frs.; telegraph and telephone apparatus, 1,129,000. (25 francs=1*l*.)

Building, Santander, Spain.

The "Gaceta de Madrid" of December 9 publishes a notice, issued by the "Ministerio de Instrucción Pública y Bellas Artes," Madrid, inviting tenders for the erection of a new building intended for the General and Technical Institute and School of Art in Santander. Tenders will be opened on January 14 at the above-mentioned "Ministerio."

Buildings, Austria-Hungary.

The "Anzeiger" of December 8 announces that the municipal authorities of Szeged have earmarked the following items for disposal during 1911:—5,510,000 kronen (about 230,000*l*.) for building schools, a music-hall, and a hospital; 3,000,000 kronen (125,000*l*.) for city drainage works, and 800,000 kronen (about 33,000*l*.) for street asphalting works.

Hospital, Tangier, Morocco.

The "Gaceta de Madrid" of December 7 contains the text of a Bill drawn up by the "Ministerio de Hacienda," under the terms of which a sum of 450,000 pesetas (about 17,000*l*.) is earmarked for the purpose of building a Spanish Hospital in Tangier.

Agencies for Russia (Finland).

H.M. Consul at Helsingfors (Mr. C. J. Cooke) reports that a firm at that place desire to obtain agencies for Finland of British manufacturers of building materials, including galvanised and ungalvanised roof plates, cement, fireproof clay, etc. The name and address of the firm in question may be obtained by British firms on application to the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, London, E.C. Any further communications regarding the inquiry should be addressed to the British Consulate, Helsingfors.

COMPETITION NEWS.

An Artistic Hoarding.

We are asked to make public the details of a competition for an artistic hoarding promoted by Mr. W. H. Lever, J.P., of Port Sunlight. The prizes offered are 50*l*., 25*l*., 15*l*., and 10*l*. for the best hoardings constructed from an architectural point of view. The dimensions of the clear posting space must not exceed 10 ft. in height and must be not less than 50 ft. in length. The whole cost of hoarding, including embellishments, not to exceed 4s. per square yard of posting space. The competitors will be required to submit drawings to the scale of 8 ft. to 1 in., with a detail drawing showing any distinctive features to the scale of 2 ft. to 1 in., together with photographs of hoardings erected and dressed with posters, the photographs to be taken from a point which will, as nearly as possible, show the hoarding in true elevation. Full particulars may be obtained from the Secretary, the United Billposters' Association, 4 and 5, Warwick-court, Holborn, W.C., to which address drawings must be sent by the end of May, 1911.

To fulfil the conditions of this competition we presume the competitor will have to get into touch with an advertising contractor, and share the honours with him.

Hospital and School of Medicine, Rosario.

H.M. Consul at Rosario (Mr. H. Mallet) reports that it is intended to erect at Rosario, in celebration of the Argentine Centenary, a Hospital and School of Medicine. The Committee in charge of the matter have announced a competition of plans for the construction of the buildings, which are to cost not more than 1,700,000 pesos (about 149,000*l*.). Prizes of 12,000, 8,000, and 5,000 pesos (about 1,050*l*., 700*l*., and 440*l*.) respectively are to be awarded for the best projects, and the Committee reserve the right to purchase any other two projects at the price of 2,500 pesos (about 220*l*.) each. Projects will be received up to 4 p.m. on April 20 next, at the "Secretaria de la Comisión Pro-Hospital é Instituto de Enseñanza Médica del Centenario, Calle Córdoba 1230," Rosario, where also particulars and plans may be obtained. A copy of the conditions, etc., may be seen by British architects at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, London, E.C., where also a limited number of copies are available for distribution.

SCHOOL, KNOTTINGLEY. — New buildings for an elementary school of the mixed kind have been opened at Knottingley. The new school, of which Messrs. Tennant & Collins, of Pontefract, are the architects, take the place of an old Wesleyan school. Accommodation is provided for 540 children, and provision is made for the holding of cookery classes for the district.

VANBRUGH'S EPITAPH.—Mr. A. Bonner, of the London and Middlesex Archæological Society, says he has reason to doubt the accuracy of the famous lines concerning Vanbrugh, for in an old volume he finds an alternative conjunction:—"Lie heavy on him, Earth, *though* he laid many a heavy load on thee." The substitution of "though" in the place of "for" gives quite a different tone to the epitaph, and the usual version implying retribution seems most applicable to the creator of weighty Blenheim.

LAW REPORTS.

COURT OF APPEAL.
(Before Lord Justices FLETCHER MOULTON and FARWELL).

Appeal by Quantity Surveyors.

Holt and Goldsmith *v.* Lord Sheffield and Others.

THIS case was heard on the 16th inst. upon the plaintiffs' appeal from an order of Mr. Justice Scrutton in Chambers.

Mr. Leslie Scott, K.C., and Mr. Baxter appeared for the appellants, and Mr. Greer, K.C., and Mr. Kennedy for the respondents.

Mr. Scott said that this was an appeal from an order of Mr. Justice Scrutton affirming the order of the Liverpool District Registrar staying an action brought by the plaintiffs against the defendants, under an arbitration clause contained in a contract between the parties. The nature of the action was a claim for certain fees for quantity surveying and a claim for damages for breach of contract to employ the plaintiffs as the quantity surveyors in respect of the work. Both heads of claim were in respect of a large building that had recently been put up in Liverpool by the Royal Liver Friendly Society. There was a site close to the landing stage upon which the Dock Board had put up their large offices, and the Society decided that they would build new offices with the view of having central offices there and making money as an investment by letting the offices to commercial people in Liverpool.

Lord Justice Moulton: Is there any dispute as to whether the matters are within the arbitration clause?

Mr. Scott said there was not. He admitted they were within the clause. The point was this, the plaintiffs, as quantity surveyors, agreed, when the agreement to employ them was made, that they would have disputes referred to arbitration. At first the defendants, the trustees of the Society, wished for the plaintiffs to agree that the arbitrator to be named in the clause should be the architect for the building. Plaintiffs thought that it would be undesirable that the person who was brought into direct touch with the work of erecting the building should be the arbitrator in the case on disputes which might be disputes between them and the quantity surveyors; but they said that they would be willing that the consulting architect, Mr. Briggs, should act as arbitrator, because he would not naturally come in contact with them in the ordinary work of quantity surveying. The reason why the plaintiffs now objected to have the arbitration conducted by Mr. Briggs was that the claim, which was for a sum of 4,000*l*., was one that arose out of a dispute upon which the plaintiffs said Mr. Briggs had already committed himself to take a certain view.

Lord Justice Moulton: You have got to make that out. Will you point out the passages in your affidavit which shows it?

Mr. Scott said that it was not an attempt by the plaintiffs to get out of the arbitration, and they wished to make no reflection whatever upon Mr. Briggs personally. Plaintiffs were willing to arbitrate before any independent person, or any other mode of dealing with the matter which his learned friends liked to suggest would be accepted at once. It was intended, when the plaintiffs were appointed as quantity surveyors, that the building should be erected of steel, and they were to have 1½ per cent. on all work done in connexion with the building. In a building of that kind the quantity surveyors would get in the ordinary course of quantity surveying a large sum. After the contract was made a change was effected at the instance of the architect, Mr. Thomas, who suggested that, instead of letting out the work on competition tenders, the building should be erected of ferro-concrete and the licensees of the patent in England should undertake the work for a lump sum. Under the arrangement so made whatever quantities had to be taken out would not be taken out by the plaintiffs.

Lord Justice Moulton: Do I understand that the question is whether the change had the effect of depriving the quantity surveyors of their commission?

Mr. Scott replied that that was the issue to be decided by whatever tribunal the plaintiffs' claim came before.

Lord Justice Moulton: Your point is that, notwithstanding the changes that have been made, the plaintiffs are still entitled to the fees?

Mr. Scott said that that would be a matter to be determined.

Lord Justice Farwell said that it was a pure question of law, and they could make the arbitrator state a case.

Without calling upon counsel for the respondents Lord Justice Moulton, in giving judgment, said that he was quite satisfied that the plaintiffs were well protected in every way. The arbitrator could make several awards and both sides could ask him to state a case on all points before going into the figures.

Lord Justice Farwell concurred, and the appeal was accordingly dismissed, the costs of the appeal being made the defendants' costs in the arbitration.

(Before the Official Referee, Mr. MUIR MACKENZIE.)

Architect's Heavy Claim Against the Cardiff Corporation.

Seward *v.* The Cardiff Corporation.

THE hearing of this case was resumed last week, it being an action by Mr. Edwin Seward, an architect and surveyor, practising at Cardiff, to recover from the defendants 10,000*l*. in connexion with the preparation of plans for the erection of the Free Library and Welsh Museum at Cardiff, and as damages for alleged breach of contract.

(The facts of the case were fully reported in last week's issue of the *Builder*.)

Mr. E. M. Pollock, K.C., Mr. Rowland Vaughan Williams, Mr. Herbert, and Mr. Wood-Hill (instructed by Messrs. Cousins & Botsford) appeared for the plaintiff; and Mr. B. Francis Williams, K.C., Mr. John Sankey, K.C., and Mr. St. John Francis Williams (instructed by the Town Clerk of Cardiff, through Messrs. Smith, Rundell, & Dodds) represented the defendants.

Mr. Seward, the plaintiff, cross-examined by Mr. Williams, said it was customary for architects to charge for rough plans apart from commission in order that the design might be agreed upon, especially when meetings and attendances with various committees were involved.

Do you suggest that there was more than one scheme for Park-place?—There were two designs, and they were entirely different schemes.

Cross-examined further, the witness said that certain plans were lost while he went to see Mr. Pyke Thompson, and explained that certain tracings were merely transitional as between proposed and completed plans. These particular tracings he had included in his charges, as they involved considerable work. In some matters the Committee did not concur in his taste as to design, but in all their tastes and requirements he was willing to meet them.

In reply to the Official Referee, the witness claimed that certain designs became alternatives to other schemes. The Committee had the value of them in feeling their way.

Suppose you submitted tentative plans to a client and he wholly disapproved of them, would you charge for them? It depends upon circumstances. There is the question of the amount of work it might involve. If he were an unbusinesslike man he might cause many months of hard work. I should then charge.

Continuing, plaintiff said 5 per cent. was mentioned in the schedule of the Royal Institute of British Architects supposing the work went on; but that did not include unnecessary work, such as he had just alluded to, which a client might make them do.

Mr. Williams then took the plaintiff through his statement of claim. Witness said he should like to amend the date of his claim for 450*l*. from May of 1902 to March 13, 1903.

The Referee said he was afraid that plaintiff was not doing justice to his own case in making alterations.

Mr. Williams: Was there any order given subsequent to March 13, 1903?—Plaintiff replied in the affirmative, and said that was shown by a letter dated January, 1904. He had been working all through the year 1903, and, in fact, that was duly recognised in the Committee's annual report to the Corporation. It was desired to economise, and this meant much fresh work. These gentlemen were keeping one eye on the plans of the block and the other eye on the expenditure involved.

Counsel suggested there was no further work done on these plans after January, 1902, but witness pointed out there had been several modifications. He described the progress of the arrangements made with regard to the proposed heating apparatus for the museum. He prepared a set of plans, but after discussion it was decided to take plans from another firm. Afterwards, in consequence of alterations, he was asked to consult with the architects of the Law Courts and the Town Hall at Cardiff, with a view to adopting the system.

Had there always been a difficulty with regard to the Corporation in getting them to spend money on the Museum?—I think that may be said to be so.

The position was this, was it not? Whereas the bulk of the Corporation were opposed to spending money on the Museum, there was a section like yourself, lovers of art, who wanted to go on?—Early in its history it was very prominently so, later it was not.

Mr. Seward said, in further reply to Mr. Williams, that there was a shortage in the minutes relating to the 150,000*l*. to 160,000*l*. contract.

Do you not think the fact that you had a contract for a building of this class, and at such a figure, would not be even worth while recording on the minutes?

Plaintiff replied that this was recognised by the Corporation, the Committee, the Curators, by himself, and, in short, by everyone he knew.

I want, in order that I may grapple with the subject, for you to say what constituted your appointment as architect to a building scheme of 150,000*l*. or 160,000*l*.?—I shall refer you to the agreement of December 21, 1901.

Continuing, witness said the paragraph he relied upon was what might be called the preamble to that agreement, and he considered that he was to be the architect for the building under that. He relied upon the general attitude of the members towards him in the matter, as well as the agreement.

May I suggest to you, as an architect, that is not a good ground for building on?—The scheme was growing very well then.

Proceeding, the witness said the sending of his plans to the Treasury was one of the best steps taken by the Corporation in regard to this matter, as they recognised his position. The Town Clerk asked him to send plans and such documents as were necessary, and clearly and definitely attached to which was the cost.

In answer to the Official Referee, the witness stated that the plans showed the cost of the earlier scheme—the 23,876*l*. scheme.

Cross-examination continued,

Witness was handed a plan and asked how much the building of that plan would involve.

Witness replied, 154,000*l*.

Do you pledge yourself that this plan for the 150,000*l*. was ever before the Committee?

Witness replied in the affirmative.

The plaintiff's re-examination was postponed till his leading counsel (Mr. E. Pollock) could be present.

Mr. Edwin T. Hall, F.R.I.B.A., examined, said he, with a colleague, had examined the plans prepared by Mr. Seward in connexion with the museum for Cathay's Park. In the regulations of the Institute of British Architects it was provided that where a building was not proceeded with the architect was entitled to 1¼ per cent. on the total amount of the estimate. That was done as a very general thing. The witness was then taken in detail through the whole of the plans drawn by plaintiff, which he said would represent an expenditure of 150,000*l*. Looking at the specification, he said he saw no evidence to show it was hurriedly prepared or written up after the proper time. He said the amount to be spent on the southern part of the building was 80,000*l*., and the complete scheme would cost about 250,000*l*. The plaintiff's plans were adequate and comprehensive, in his opinion.

Cross-examined by Mr. B. Francis-Williams: There must necessarily be a good deal of discussion before the details of a building like the one in question could be settled. He pointed out the differences which existed in the plans prepared by the plaintiff after discussions with the Curator and the sub-

committee. He denied the suggestion made by counsel that in all essentials the plans prepared by plaintiff were the same. They were different in many instances.

Further cross-examined, witness said the fee for the whole of the block plans would be 250 guineas.

I suggest that what occurred was that the defendants contemplated a building to cost 30,000*l*., which subsequently came down to 24,000*l*., and to so build it that they could add to it in the future, and that they gave him the key from which to make a block plan. Now, if I want you to build a house to which I can add a wing at some later time, do you charge me as an architect for the whole building?—It depends on whether it is a mere trifle or a wing to cost 20,000*l*. I should like to know more detail before I could possibly say. But that is not the present case.

Supposing the thing went on to the final details, your architects would be entitled to 1¼ per cent.?—Yes, and that might merge in something larger.

Do you say that every change necessitates fresh plans?—No.

Has it not been your experience that while plans are being discussed constant changes are made for which no charge can be made?—Yes, sometimes; but if I am building for a man, and he says I shall put a new wing there, and I prepare plans, and then he does not carry out his idea, of course I should charge him for the plans.

Further cross-examined, witness said when there were radical changes in the plans which did not amount to an actual new scheme, then he thought an allowance ought to be made for so much of the first scheme as was embodied in the second.

Do you consider there was a radical change in the scheme in question?—I think there were considerable modifications.

Do you think there was such a change in the plans as to necessitate fresh drawings?—Yes.

Witness then, with the aid of the plan placed on the Referee's desk, pointed out certain details in which he considered great changes had been made.

Do not these plans show that the plaintiff has been working from a very small scale to a very large one?—No; the question of scale has nothing to do with the question of design.

How long would it take to prepare a block plan?—It depends on whether the man who prepared it was a quick worker.

How long would it take you to do it?—About three weeks' to a month's study.

I suggest to you that the only amount properly due to the plaintiff in respect of Cathays Park is 2½ per cent. on 30,000*l*., and that should cover the lot. You do not agree with me?—No, or else I should not have been giving the evidence I have done.

I suggest all the early plans are merely preliminary sketches in pencil leading up to the final plans?—No; they are very elaborate plans, and their being in pencil makes no difference. They could be easily inked over by an assistant.

In re-examination witness said the block plan was merely a general horizontal section of the ground levels throughout the building to show what ground the plan would cover. It would not by any means be everything that was necessary, or else there would be no need for an architect.

You were asked whether if you designed a house for a client with the intimation that it would be added to later on, would you charge for the additions that were to follow?—Of course not.

But if, on the other hand, you were asked to design a part of what was to be a harmonious whole, could you fulfil that design without taking into consideration what the design of the harmonious whole must be?—Of course not. The mere time taken in drawing plans represented no fair portion of the brains put into the design by the architect.

Mr. Henry Vaughan Lanchester, F.R.I.B.A., a member of the firm of Messrs. Lanchester & Rickards, examined, said he had been in practice for twenty-two years, and had had large experience in architectural matters. He was aware of the position occupied by the plaintiff in regard to the proposed museum buildings. He had examined the plans prepared by the plaintiff in connexion with the general scheme, and had also seen the block plans. He agreed with the evidence given by the previous witness as to the reasonableness of plaintiff's charges. He considered the plans drawn were proper and comprehensive plans. The general scheme would involve an outlay of about 150,000*l*. at the stage it reached in the architect's design. The first part was to cost something under 30,000*l*., and he agreed that 1¼ per cent. was the proper charge for what had been done on that part of the scheme. He had been through the second set of plans drawn from March, 1903, to January, 1904, and those showed various alterations from the earlier set. He thought, with Mr. Hall, that some allowance should be made from the charges made for the second set of plans for what work was included in them from the first set. He considered the work in the second set of plans would involve a considerable amount of study and skilful work. Looking at the specifications of January, 1904, he said the fact that blanks had been left in it was no evidence of haste in its preparation.

Plaintiff was then re-examined by Mr. Pollock.

He said he had prepared three different sets of plans since the 1901 agreement. The first set of plans covered the Index Hall as well as other buildings. In the second set of plans the Index Hall was only 2 ft. below the normal level, instead of a considerable number of feet below as was the first set, which was a very important alteration. There were also changes concerning a staircase in the second set. Then there were variations in the area of the front—10 ft. each end. The chief changes in the third set of plans had to do with the question of economy arising from the reduction of expenditure.

The affidavit of discovery of documents was made this year. At the time you prepared that had you got all the minutes before you?—No.

At the time you prepared your particulars to what source did you have to go to get the minutes and so on?—It was only by going to the Cardiff Free Library. Sometimes I was able to get the various references, and sometimes not.

They are bound up in volumes?—The more recent are not bound up, but are in a scattered condition.

Rightly or wrongly, for the purpose of preparing your case you had recourse to the minutes at the Free Library?—I did, sometimes without success.

Later on your solicitors procured copies of the minutes, which we have now before us?—Yes.

With regard to some matters do you agree that your particulars are incorrect?—Yes, I do.

Continuing, witness said the specifications he had drawn were considered by the Committee, and he spent part of his Christmas in the preparation of those specifications.

Is there any truth in the suggestion that you hurriedly wrote up the specifications afterwards?—In that sense no truth whatever, except that it was pressing work and I had to work far into the night.

Mr. Williams asked you some questions, and suggested that these documents were not prepared by February 1?—I filled in certain things afterwards, as I explained.

This specification covers some fifty-six pages?—I believe it does.

Mr. Max Clark, F.R.I.B.A., gave evidence corroborating the evidence of Mr. Hall and Mr. Lanchester as to the fairness and reasonableness of the charges made by the plaintiff.

Mr. T. M. Deacon, examined, said he was a quantity surveyor practising in London, and had thirty or forty years' experience. He was one of the surveyors appointed by the Admiralty and His Majesty's Office of Works. He was called in to advise in connexion with the competitive plans for the National Museum of Wales. He had gone into the figures of the final scheme prepared by the plaintiff, and he gave the cubical contents of the various buildings. The total cubical contents of the whole of the buildings came out at 3,064,594 ft., and the probable cost worked out at 153,983*l*. The witness then gave the figures for the various blocks of buildings which formed the total as given above. He had allowed 2,000*l*. for carvings and sculpture, and a certain sum for enclosure of the very large space in question.

Cross-examined: He got the plans on which he worked from the plaintiff, and these gave him the height of the buildings and the foundations, etc. He took the probable cost of the basement at 9d. per foot. The varying cost of labour might make a difference of 5 per cent. in the total cost, but not more. He had assumed the building was to be gone on with at once. He could not be so definite as he was now in his figures if he knew that the work would not be concluded in twenty years.

The whole cost you have given is a "shot"?—It is based on a great deal of experience. It must be a "shot," but so is a builder's estimate.

This closed the plaintiff's case.

Mr. Williams said he did not intend to open his case with a speech, as no doubt the learned Referee had gathered what his case was. He would reserve what he had to say to the end of the case.

Mr. John Ward was the first witness for the defendants. He said he was a Fellow of the Society of Antiquaries, a member of the Committee of the Cambrian Archæological Society, and a member of the Derbyshire Archæological Society. He was appointed Curator of the Welsh National Museum in May, 1893.

Was the plaintiff ever instructed to prepare the 24,000*l*. scheme for Park-place?—No.

Was a resolution passed about this time that the Park-place building should only cost 12,000*l*.?—Yes.

And on March 26 were you instructed to prepare plans for the building in Park-place?—Yes.

Then the plaintiff's letter asking to be appointed was received?—Yes.

And he was formally appointed architect on May 14, 1895, subject to his withdrawing his claims for work done in regard to the Working-street site?—Yes.

Mr. Vaughan Williams said he understood Mr. Pollock had abandoned that portion of the claim which related to the statute-barred part, so that there was no need to go into all these matters. What plaintiff now said was that these matters were merged in the agreement of December 21, 1901.

Mr. Williams said it was material to show how all these matters grew up.

Further examined, Mr. Ward said rough plans were submitted by the plaintiff on October 16, 1895, and they were considered by the Committee.

By paragraph 3 of plaintiff's statement of claim he says that the plans submitted on October 16, 1895, were abandoned on February 14, 1896. Is it accurate to say that the plans submitted on October 16 were abandoned on this date?—It is quite untrue.

Was there only one scheme with regard to the Park-place Museum which was from time to time modified and developed?—Yes. First of all the Committee presented a report with a model to the architect, and various points were then considered.

What were the chief deviations?—They related to the position of the staircase, the balcony, etc. My plan was simply a block plan for the general guidance of the architect, and it was obvious that before the architect could supply the Committee with proper plans he must know all about the elevation, the treatment of the walls inside, the materials used, the heating, and one hundred other points of detail which necessarily came before the Committee for discussion.

What was the result?—In the result the general identity of the plans was obvious at a glance.

Then about this time the scheme for the Welsh National Museum was started?—Yes.

Mr. Sankey here took up the examination of the witness, who detailed at length the action taken by the Corporation and the various Committees on the subject, with the result, he said, that it was decided to erect the museum in Cathays Park. It was found that the plans proposed for the Park-place site would not do for the building on the Cathays Park site. His general idea of the form of building was to have a large index-hall, which was to be a predominant feature of the museum, and the rest of the site was to be occupied by buildings and galleries like the bars of a gridiron.

In reply to further questions, witness said that in January, 1901, the Committee passed a resolution deciding to build the south and west fronts of the Museum at 14,000*l*. and

6,000*l.* respectively, and a Sub-Committee was appointed to go and see Mr. Seward on the question. At that interview Mr. Seward said if he was appointed architect of the Cathays Park building he would put 200*l.* on the foundation stone and give a further 100*l.* when the building was complete.

Witness was asked by the Committee to render all the assistance that was in his power, and he must say Mr. Seward had acted most loyally and was always ready to discuss matters with him.

On May 13, 1902, would it be correct to say that the plans approved by the Building Committee were any different from those which had been approved in January and April of the same year?—No; they were precisely the same.

With regard to the new elevations which were drawn up near the end of 1903, was there any instruction from the Committee to prepare them?—No; though the general design had been definitely approved, there was a feeling among the Hon. Curators that they were not quite satisfied, and, as the plaintiff was aware of this, he was anxious to meet them, therefore he voluntarily drew fresh elevations, but there was certainly no fresh instructions from the Committee that he was to do so.

Further examined, witness said the alteration in height of the buildings would not affect the plaintiff's plans at all, though it would affect the elevation, and also the sections. On June 24, 1904, the plaintiff waited on the Museums Committee, and they approved his plans for building for 25,000*l.*, including architect's charges and bills of quantities, while the heating was to be further considered.

In your view, was this a new scheme at all?— No; I do not see why it should be. There were a certain number of amendments which had to be carried out. In my opinion it was simply an amended scheme, and not a new one.

These estimates were well under 25,000*l.*?—Yes.

On January 3, 1905, the Committee resolved that the amended plans and specifications be referred to the consideration of the Free Libraries and Museum Building Committee?—Yes.

The Official Referee: Were you there?—Yes.

Was the specification laid before the Committee at the meeting?—No; I think not.

Mr. Vaughan Williams: Are you sure?—I have no recollection of it. I have always taken it that the word "specification" was a mistake for "estimates."

Mr. Sankey: So far as you know at the time was any specification before the Committee?—I neither saw nor heard of any.

Was there ever more than one scheme for the Cathays Park Museum?—No; I can only see one scheme. First tentative plans, then working plans, and lastly working plans developed.

Then in December, 1906, a deputation was appointed to wait on the Treasury, who eventually decided that all responsibility for the erection of the Museum, etc., must rest with the new governing body to be created?—Yes; that was so.

And then in October, 1908, the Museums Committee, having failed with the Treasury, tried the Welsh National Museum Bill. They decided to put the matter up to public competition?—Yes; and that was done.

Witness was then taken in detail through a number of copies of plans and sketches, which he explained at length. He said that plaintiff's tentative plans were to be considered first in order that plaintiff might know what it was the Committee desired. A great many of these were certainly sketches and not completely finished.

The witness, further examined, said that in his opinion all the plaintiff's later plans were only the development of a single scheme. All the sections together were merged in a fairly complete scheme, but taken apart each set was very imperfect. The block plan showed a scheme which would involve an expenditure of some 154,000*l.*

Was that ever ordered at any Committee meeting at which you were present?—No.

Was it discussed at any meeting at which you were present?—No.

Cross-examined by Mr. Pollock, witness said that the plaintiff gave a great deal of time and study to the plans.

Was there an immense amount of labour and study put into this work by Mr. Seward?—Yes; only I say that without my initial work he would have had to do more.

Do you think this is a fair statement that these plans had been prepared by Mr. Seward after long and arduous labour?—No; I have no reason to accept that.

Ought he to be paid for it?—Certainly.

Do you make a charge against the plaintiff that he did not prepare the specification at the time he says he did?—No.

Do you make a suggestion that it was not made at the time it was said to have been made?—I simply say I have no recollection of it being before the Committee, and that the Committee, having appointed a Sub-Committee to confer with the plaintiff on the subject of the specification, seems to infer that it was not in existence.

Do you want us to infer that the specification was not in existence at the time it was said to have been before the Committee on January 3, 1905?—I do not make any suggestion.

Further cross-examined, the witness stated that he had no recollection of having seen the specification at the meeting.

You know there is a letter from Mr. Wheatley, the Town Clerk, saying:—"I duly received your letter, together with the plans and specification which accompany it. Upon carefully going over them I notice that the plans have been recently inked in, and that the specification seems to have been written within the last week." Is not that an unpleasant suggestion?—It is nothing to do with me.

Is it not an unpleasant suggestion?—I did not see the specification. I take it that if Mr. Wheatley thought it had been written recently I suppose he had some reason for calling plaintiff's attention to it.

Cannot you read in that letter any sort of sinister suggestion?—It seems to me quite outside my evidence.

Will you answer the question or not?—I will not.

Is Mr. Wheatley to be called?—I don't know.

Mr. Williams: Wait and see.

Cross-examination continued,

Do you know that the plaintiff was put forward as the architect of the Welsh National Museum? Do you think that if he had inked in the specification for his own purposes he would have been a proper person to recommend as architect?—I don't know that this bears on the question at all.

Mr. John Ballinger, the Librarian of the National Library of Wales at Aberystwyth, and Mr. Illtyd Thomas, now an Alderman and formerly Lord Mayor of Cardiff also gave evidence on behalf of the defendants, the latter stating that he was present at most of the Committee meetings, and regarded the whole of the plans as dealing with one scheme only. He agreed that the plaintiff did good work in connexion with the plans, but the brainwork was expended by the Hon. Curators and the Committee, and the other part was to a great extent draughtsmanship.

Has a single brick of this Museum been laid?—No; but we have accepted plans and designs.

Mr. Pollock: Well, my experience of this case makes me think that doesn't amount to much.

Mr. William Woodward, F.R.I.B.A., examined, said he had been in practice for thirty years, and had carried out large buildings in London and elsewhere. He had inspected the plans and drawings prepared by the plaintiff. In his view, the scheme was unquestionably that of Mr. Ward, and so far as he could gather from the evidence Mr. Seward did not appear to have done more than carry out the scheme of Mr. Ward. In his opinion, Mr. Seward was not justified in separating a group of drawings into three sets. They were one set. On the 30,000*l.* scheme relating to Cathays Park he thought the plaintiff was entitled to 750*l.*, or 2½ per cent. He further thought that Mr. Seward was entitled to 100*l.* for the preparation of half-inch details.

Mr. Arthur Harrison, F.R.I.B.A., also gave evidence in support of the defendant's case, and at the conclusion of the evidence the further hearing was adjourned until next sittings.

CORRESPONDENCE.

Licentiates R.I.B.A.

SIR,—Those architects who live in London or in the great provincial towns have little knowledge of the difficulties and temptations which beset their professional brethren who practise in the sparsely populated country districts.

Mr. A. W. S. Cross, V.P.R.I.B.A., and I have just returned from an extended motor tour of some 1,200 miles through the provinces, and we have addressed many meetings on the subject of the Institute's policy in the formation of the new class of Licentiates.

We were invited to undertake this tour by the Parliamentary Bill Committee of the Royal Institute of British Architects, and, so far as I know, for the first time in the history of the Institute, the allied societies, at the desire of the Institute, invited all the architects who neither belong to the Institute nor the allied societies in their respective districts to come to the meetings and hear what Mr. Cross and I had to say on the subject of Licentiates.

To an extent these meetings were unique, inasmuch as through their instrumentality the Institute and allied societies were brought into touch with a certain class of architects which up to the present time had held itself aloof from any direct intercourse either with the Institute or its offshoots.

It is to be hoped that the gentlemen who came to the meetings learnt something of the R.I.B.A. and the steps that body is taking towards the realisation of its new policy of registration.

On the other hand, both Mr. Cross and I were afforded an opportunity of appreciating the manifold difficulties under which many architects are compelled to carry on their practices.

Living, as many of these architects do, in districts far removed from any architectural society, they have none of the advantages which other practitioners enjoy in meeting their professional brethren upon some common ground. It was apparent that most of the gentlemen who came to the meetings were almost total strangers to each other, and the scheme for the unification of the members of the profession for its common good appealed to them strongly.

I hope that I am not in any way misjudging them, but it appeared to Mr. Cross and myself that these unattached architects regarded their fellow-practitioners as competitors who sought to build up practices by undercutting each other on the question of fees.

In one district the architect's remuneration of 5 per cent. on the cost of the work was unheard of; so low indeed had the architect's charges become that the architect who was successful in securing some recent work was content to accept shillings where the proper fees under the scale of the R.I.B.A. would be pounds. We were informed that architects could not live at this rate of remuneration, and we were in no way surprised to hear of the various methods by which practitioners were forced to supplement their incomes.

If these facts are realised by the more fortunate section of the profession, it becomes imperative that those with power should exercise that influence to ameliorate the lot of their less fortunate provincial brethren.

Unfortunately, at the present time there is nothing to restrain anyone from joining the architectural ranks. The lack of training is no deterrent; the lack of means only suggests to the aspirant to architectural fame other methods for augmenting an inadequate income.

Is it surprising that, in the existing conditions, there is a tendency for the greatest of all professions to become smirched in the estimation of the public?

Or, again, is it to be wondered at that the "lamp of beauty" and the "lamp of truth" are extinguished in some districts, while they burn none too clearly in any part of the country?

Compulsory education is essential if our country is ever to regain its ancient pre-eminence in art, but it is folly to talk of compulsory education without the power to compel.

Registration means compulsory education, and, though artists cannot be created by Acts of Parliament, no one can deny that an

enforced training in the art of architecture before a student is allowed to practise would be some guarantee that the practitioner was a capable and educated architect.

Few of the great monumental civic buildings show that the architects, however notable, have any sound training in architecture. Our cities present notable instances of lost opportunities, while our towns are vulgarised by flagrant examples of the untrained and incompetent practitioners, and even our quiet, unostentatious villages are quickly losing all their charm in the hands of the unrestrained architect-cum-builder tradesman.

Late as it is to begin setting our house in order, and great as the work is that lies before the Royal Institute of British Architects, that body is to be heartily congratulated in its present endeavour to raise our art and those who practise it. GEORGE HUBBARD.

SIR,—I was pleased to see Mr. Purchon's letter *re* candidature for the Licentiateship of the R.I.B.A., and would desire to put the question to probable candidates in another light.

For some years architecture was a busy profession, and the R.I.B.A. sent forth this fiat, "Pass our exams. or you're not architects," and many young men, listening to those wise counsellors, gave up their leisure, studied, and passed the exams., probably at the cost of impaired health, certainly of depleted purses. Others failed, and, when applying for situations, had to admit they were not architects from the R.I.B.A. standpoint.

To-day the architectural assistant is a drug on the labour market. Men who have become A.R.I.B.A's. are being turned out of situations they have held for years, owing to slack business. There is not sufficient work to keep old-established firms going; what can the A.R.I.B.A. do but live on his bank account (I nearly wrote books, etc.)? Being tight, they write the Institute, "Can subscriptions stand over?" The Institute reply, "Pay up, or—outside!" And this to men who have paid them 10 or 12 guineas exam. fees.

Yet, on the other hand, this same Institute is asking all the men, who, for various selfish reasons of their own, have not sat for these exams., to join the ranks of "the just made perfect" for a guinea a turn.

The obvious conclusion is that the Licentiateship is a purely financial wheeze to be supported by road surveyors, etc.

Registration is a fine thing, and desirable—the Institute magnates reply, so is finance.

FRANK WILSON
(formerly A.R.I.B.A.).

SIR,—I would like to say a word in regard to "Nemo's" letter which appeared in your last issue.

I quite agree with him that the use of the affix "Licentiate" instead of L.R.I.B.A. will deter many from joining this class, and rightly, too. I joined, as I hope the majority did, for the sole reason to add strength to the Institute and give them more power, and at that time I never thought this childish quibble of a word or letter was going to crop up and that I was to carry the word "licensed," like a hawker, or I would have had none of it, and I should advise those who are thinking of joining to wait till this licensed stigma is removed. Personally, I have only used the affix once, when I was held up to ridicule by the laymen that saw it; they having never heard of such a thing before, naturally wanted to know the reason, a question I was unable to answer. The result is I have been ashamed to use it ever since.

The thing that struck me most on reading over the list of Licentiates was the number of well-known and able men it contained, men who have no need of the Institute's assistance, many of whom I had always imagined were Fellows from their prominent position in the profession, and this is the treatment meted out to them; but they can afford to smile.

If I have a further amended declaration sent to me to sign agreeing to use only the word "Licentiate," I shall seriously consider returning it, along with my certificate, as I consider it no great honour to belong to a society of spoilt children, who foster and encourage caste hatred. If the Institute cannot agree among themselves, how on earth do they expect to do any good outside in the cause of architecture? L.R.I.B.A.

SIR,—Your correspondent, Mr. Purchon, seems to quarrel with the principle of admitting the Licentiates without their having been through the usual examination for the Associateship. But is this exam. the be-all and end-all of architectural qualification? And how many of the Fellows and Associates have been admitted on the same credentials as are required of the Licentiates?

Furthermore, which is likely to be the more qualified architect—a man of twenty or thirty years' experience, with, say, two or three hundred thousand pounds' worth of work and general practice, or a fledgling of twenty-three or so years of age, who has spent a few years in someone's office, crammed for and passed the exam., and puts A.R.I.B.A. after his name?

The latter, apparently, is to be regarded as a fully-qualified man; but has he any really reliable qualification from the client's point of view? H. D.

Payment of Quantity Surveyors.

SIR,—I strongly agree with the correspondence in your last issue with reference to the evils which have crept into the profession of quantity surveying, and which are so detrimental to the builder, who is naturally interested in securing a good bill of quantities.

Your correspondent "Senex, F.S.I.," rightly objects to public bodies giving the work to the surveyor who quotes the lowest price. What does he say of the public bodies who ignore the surveyor altogether?

I invite your attention to the published list of tenders for erecting twenty-nine cottages at Mays-lane, Barnet, where forty-two builders competed without quantities.

This probably accounts for the difference of 3,531*l.* on a 5,169*l.* job. Assuming 2½ per cent. to be a fair cost for each of the forty-two builders taking out quantities for and pricing this contract, it can be seen at a glance that the cost to the builders of tendering is practically equal to the cost of the whole of the work in question.

Therefore I can only second your other correspondent, "T. P. P.," who suggests that in order to remedy the evil master builders should co-operate with the quantity surveyors, and thereby endeavour to obtain the fair consideration that both are entitled to.

It is to be regretted that many members of the Master Builders' Association do not adopt that excellent suggestion that no builder should tender without quantities for work over the value of 500*l.*

Even with quantities a builder is put to considerable expense in tendering, and can only hope to repay the cost of unsuccessful tenders out of the successful ones, and to add to his expenses by not issuing quantities is most unfair to the builder and unfair to the quantity surveying profession.

F. J. GAYER, Builders' Manager.

SIR,—I quite agree with the views expressed by your correspondents in your last issue, that the thanks of the profession are due to you for publishing opinions on this important question, and shall be glad if you can find space for a few remarks I have to make to those interested therein.

It is true, as your correspondents state, the number of quantity surveyors has increased out of all proportion to the work to be distributed amongst them; at the same time the number of those in independent practice is not so large that a combination amongst them is, in my view, impossible.

The Fellows' roll of the Surveyors' Institution contains the names of upwards of 2,000 gentlemen, of whom I believe, rather over 100 are quantity surveyors, and of these about thirty are also members of the Quantity Surveyors' Association. The fact that the remaining seventy have not seen fit to join that Society has rather handicapped its Council, whose efforts on behalf of the profession are so much appreciated by your correspondents. The membership of the Quantity Surveyors' Association is about 200, and the number of quantity surveyors of repute who belong to neither society is, I think, very small indeed.

Personally, I do not think the millennium will be reached by the issue of a model scale of charges by the Council of the Surveyors' Institution, to which their own members (the seventy or 100 referred to above) might possibly adhere, but which would not be binding on two-thirds of the profession; and that body will probably not overcome its well-known repugnance to deal in any way with surveyors' fees at the request of an insignificant proportion of its members who follow one small branch of that profession which is practised under the comprehensive name of surveyors. For this reason we quantity surveyors cannot expect much assistance from the Surveyors' Institution by itself. I am convinced that no practical benefit will result from the issue of memoranda and appeals to public authorities asking them to pay higher fees than those for which they find they can obtain the services of eminent surveyors and leading members of that body; and I am in agreement with your correspondents who advocate the formation of a strong combination amongst the members of our profession.

In my view this combination could, to a great extent, be obtained by a fusion of those quantity surveyors who are members of the Institution and remain outside the ranks of the Quantity Surveyors' Association with the latter body. For reasons, however, to which I refer below, those gentlemen will not join the Association as it is at present constituted, and, therefore, some alternative course must be devised. Under the charter or by-laws of the Royal Institute of British Architects provision is made for the affiliation of other bodies under the name of allied societies. I presume a similar provision exists, or could be inserted, in the charter of the Surveyors' Institution, and a reasonable solution of the difficulty referred to above would be the affiliation of the Quantity Surveyors' Association with the Institution, in the sense in which the Manchester or Liverpool Architectural Societies are allied to the R.I.B.A. With the exception of those by whom that honour is already possessed the members of the Quantity Surveyors' Association would, of course, not become members of the Surveyors' Institution, but the additional prestige and influence which the Association would enjoy through an affiliation with the older body would no doubt attract to its ranks those quantity surveyors who have not hitherto joined either society. An alliance such as the one indicated above would also remove those difficulties which have hitherto prevented some of the older Fellows of the Institution who are eligible from joining the Association, inasmuch as, however unwilling they may be to support a society which they imagined was intended to rival their Institution, no excuse on these grounds could be adduced after its affiliation to that body; in addition, seeing that the Institution would wish to approve the articles of any society which they proposed to support in this way, an amendment of those clauses, to which some exception is taken, could be effected.

By agreeing to an alliance such as the one outlined, and so clearing the way for a strong combination amongst quantity surveyors, the Surveyors' Institution would be conferring the greatest benefit on the members of that profession, and would at the same time not be departing from its settled policy of non-interference in any question of fees.

Your correspondent "Senex, F.S.I.," expresses the hope that his letter may be the means of producing some practical suggestion. The one I make above appears to me practical. I am, however, prepared to hear that it is impossible from those who, both in the Press and at the Surveyors' Institution meetings, lament the conditions under which our profession is now practised, but refuse to associate themselves with any reform.

F.S.I. and Q.S.A.

Acceptance of Tenders.

SIR,—As we are old subscribers to your paper, we venture to draw your attention to the following case:—

We were recently invited to tender by a firm of London architects for the alteration of some old houses into flats. Our tender was the lowest, but we were informed by the architect that it amounted to more than their clients were prepared to spend, and they asked us to make an appointment to come to London to go through the quantities with a view of reducing same to a certain sum, which we could not succeed in doing. We were then informed that our tender could not be accepted, as it amounted to more than the owners were prepared to spend. The next stage is, that immediately afterwards the work was started by a firm who were 206*l.* above us in the first instance, but not the next lowest tenderer, who has not been approached in the matter. On inquiring from the architects, we were informed that, acting on instructions, they offered the work to this particular firm at their clients' price, 370*l.* below ours, who accepted it. Surely these proceedings are somewhat extraordinary. They put four builders to a lot of expense and trouble, obtaining *bonâ fide* tenders from them, and then put the job up to a kind of Dutch auction. HOVE.

THE
BUILDER.
DECEMBER 24, 1910.

TO CORRESPONDENTS.

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All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples sent to or left at this office, unless he has specially asked for them.

All drawings sent to or left at this office for consideration should bear the owner's name and address on either the face or back of the drawing. Delay and inconvenience may result from inattention to this.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

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MEETINGS.

THURSDAY, DECEMBER 29.

The Royal Institution (Christmas Lectures).—Professor Silvanus P. Thompson, B.A., LL.D., on "Production of Sound." 3 p.m.

SATURDAY, DECEMBER 31.

The Royal Institution (Christmas Lectures).—Professor Silvanus P. Thompson, B.A., LL.D., on "Transmission of Sound." 3 p.m.

FIFTY YEARS AGO.

From the *Builder* of December 22, 1860.

On Acoustics.

ECHO is, where it exists, one of the most formidable blemishes possible in a room, for it asserts its unwelcome presence with every word that is spoken. The presence of a flat surface at a considerable distance from the speaker or musician, and facing him, is very much to be avoided, as apt to echo, and consequently in almost all good public rooms the end farthest from the platform is curved, or recessed, or otherwise broken up, or has a gallery thrown across it, the front of that gallery being carefully arranged, so that either it shall not echo or shall reflect the sound to where there is no auditory. In case of an existing echo, the best remedy no doubt is to break up the surface of the reflecting wall in some such way as this. Where expense or other difficulties prevent this remedy being applicable, to hang up draperies, which may mask and break up the offending surface, is good.

In over-lofty rooms an echo is often perceived from the ceiling downwards. Such a one exists very decidedly in the new reading-room at the British Museum.

Should the echo, however, be indistinct, or very much broken up, or should there, indeed, be a noise, but not amounting to a regular echo, the disturbance is called reverberation.

The excess of resonance in an empty room often causes reverberation, and may be generally cured by covering these surfaces which reflect sound with soft substances. The audience frequently do it, but if not, the gradual addition of carpets or matting, or hanging up drapery, will proportionally deaden the excess of sonority in the room till a proper pitch of distinctness is gained. In a church in the north, where the reverberation was unpleasant, even when there was a full congregation, the desired quiet was gained by laying down matting over the aisles and other open spaces.

*** These remarks may be of value to recent inquirers on the subject.—ED.

ILLUSTRATIONS.

Castor Church, Peterborough.

OUR illustrations this week are all from measured drawings by Mr. E. Howley Sim, A.R.I.B.A., an article from whom, giving an interesting account of the building, appears on another page.

LEGAL COLUMN.

The Action upon Form IV.

The action brought in the Law Courts to test the validity of the celebrated Form IV. in connexion with the land taxes, and in which judgment was delivered in the Court of Appeal on Saturday last, only at present has turned upon the technical point as to whether the statement of claim disclosed any cause of action. The plaintiff, who is the owner and occupier of a house and gardens and a farmhouse and some agricultural land, raised in his claim the point that Form IV. was illegal, unauthorised, and *ultra vires* upon the following grounds, amongst others: That requirement (*i*) asking the occupier to state the annual value of the premises was *ultra vires* sect. 26, subsect. 2, and that the statutory time was not allowed for making the returns, and that the return had to be made not to the Commissioners, but to a person who was, it was alleged, a village blacksmith. The only question before the Court of Appeal was whether the judge had rightly decided under one of the rules of Court that no cause of action was disclosed in this pleading, and whether a declaration, such as was sought in this case, could be obtained in a suit against the Crown represented by the Attorney-General. The decision of the Court does not touch the merits of the action, but is simply to the effect that the action can proceed. Lord Justice Farwell, with reference to three other cases decided in the Courts this year on other points where the Government Departments were concerned, emphasised the importance to the public of recourse to the Courts as a protection against departmental aggression.

An Architect's Action for Services Rendered.

The case of Hodge *v.* Urban District Council of Matlock and Bath and Others, noted the *Builder*, August 20, came before the Court of Appeal recently on an application for a new trial (see the *Builder* Law Reports, page 717, December 10). It was a case in which an architect was suing for damages for wrongful dismissal, and the defence was raised that, as the contract with the Council was made only by resolution and not under seal, as required by the Local Government Act, 1894, no action would lie for the breach of it, a contention which prevailed, but the judge in the Court below also held that, as the Council had received benefit from the work done, the plaintiff was, nevertheless, entitled to receive something by way of *quantum meruit*, and he gave judgment for the sum found due by the jury, 230*l*. In the Court of Appeal the Court allowed the appeal on the question of the amount so awarded, but on the plaintiff consenting to a reduction of the sum to 118*l*. no order for a new trial was made. The case was very shortly reported, and it does not appear what questions were left to the jury and how they arrived at the sum of 230*l*. Possibly this sum included something in the shape of damages for the wrongful dismissal, but the importance of the decision remains that when services have been rendered to a corporation and they have derived benefit from them they, as would be the case with a private individual in contracting with whom the contract need not be under seal, are liable to pay for such services as are rendered even although the contract *is* invalid as not being under seal.

Alteration in Premises Involving Loss of Comfort to Tenants.

The case of Browne *v.* Flower, reported in our Law Reports on December 3, raises a question of some importance to those who live in buildings, such as flats, which accommodate more than one family. The building in question, though described as a flat, was in reality a maisonette, as each set of twelve rooms was contained on two floors occupied by separate tenants. One of the tenants, with the consent of the common landlord, divided her suite into two, and to obtain access to the rooms on the first floor an open-work iron staircase was erected outside the building, passing between the windows of two rooms in the plaintiff's occupation. As the staircase commanded a view into these rooms, which were bedrooms, it was necessary to curtain the windows and darken the rooms. This was held not to be an interference with the light to make it actionable according to the principles laid down in Colls *v.* Home and Colonial Stores, and this part of the decision seems to be unquestionable; but it was further held that it was not a breach of the covenant in the lease for quiet enjoyment, as an interference with mere comfort would not suffice; and the action against the landlord therefore totally failed. Now, looked at in the light of common sense, this case seems one of hardship to the plaintiff. Anyone desirous of taking a flat and seeing a staircase outside commanding the bedroom windows would either reject it altogether or pay less rent for it, as the necessity of darkening the windows would interfere not only with the comfort and enjoyment of the tenant, but with the desirability of the flat from the point of view of health; yet a tenant in possession is apparently compelled to put up with this alteration of the premises, and is left without remedy. If this be the case, it behoves tenants of such buildings when they enter into the lease to see that covenants are inserted which shall render such an alteration in the premises they are taking an impossibility.

INTERCOMMUNICATION COLUMN.

Smoky Chimneys.

SIR,—My three chimneys on ground floor smoke when wind is in "wrong" direction; from one chimney (not in constant use) mortar and small stones are always, more or less, falling. Can anything be done to improve these condtitions? IGNORANT.

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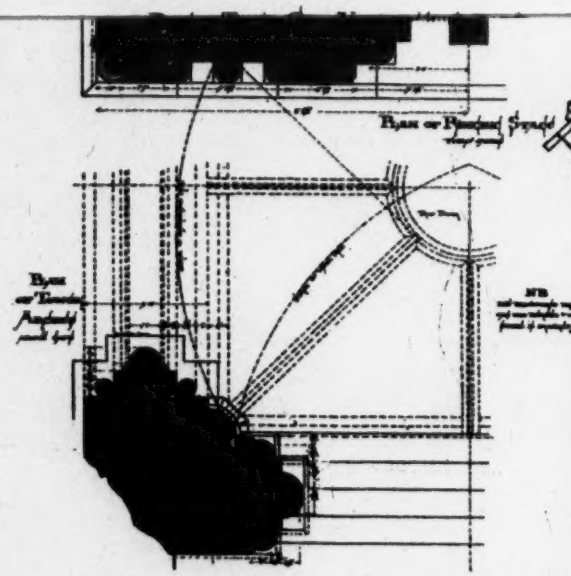
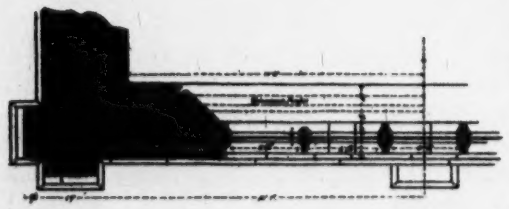
CASTOR CHURCH • PETERBOROUGH •

MEASURED & DRAWN BY MR E. HOWLEY SIM, A.R.I.B.A.

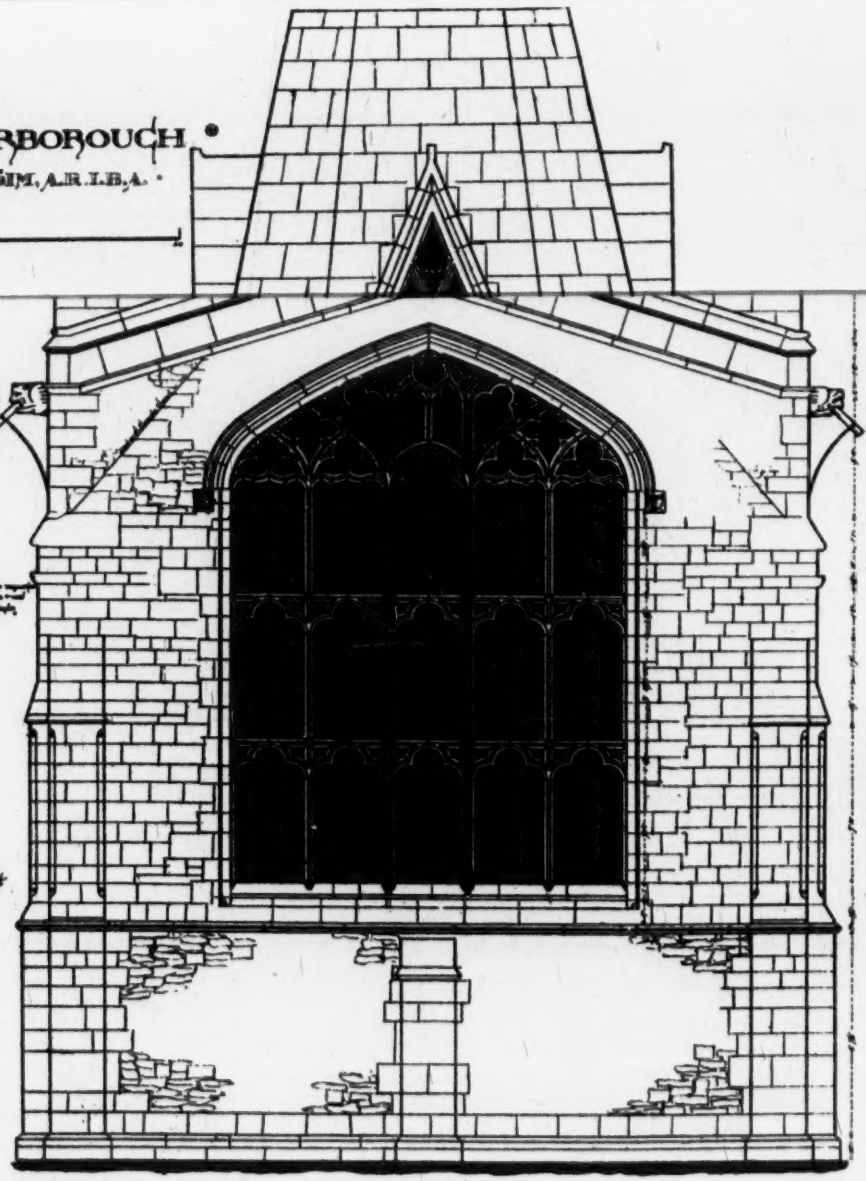
SCALE OF FEET



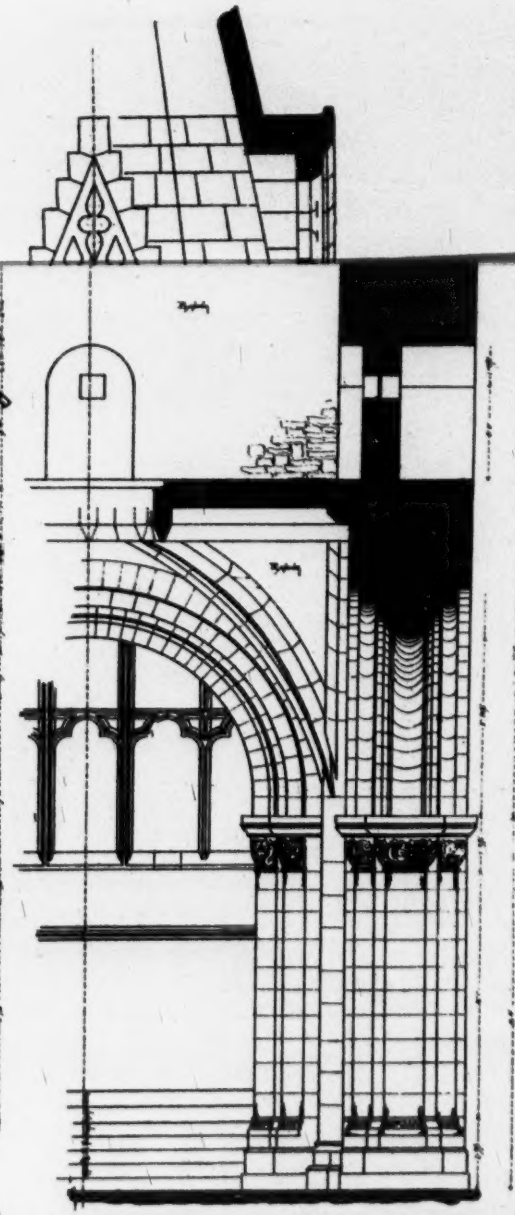
PLAN OF TOWER, ARCHWAY



PLAN OF EAST END OF CHANCEL



EAST ELEVATION



SECTION OF TOWER

PHOTO-LITHO. SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

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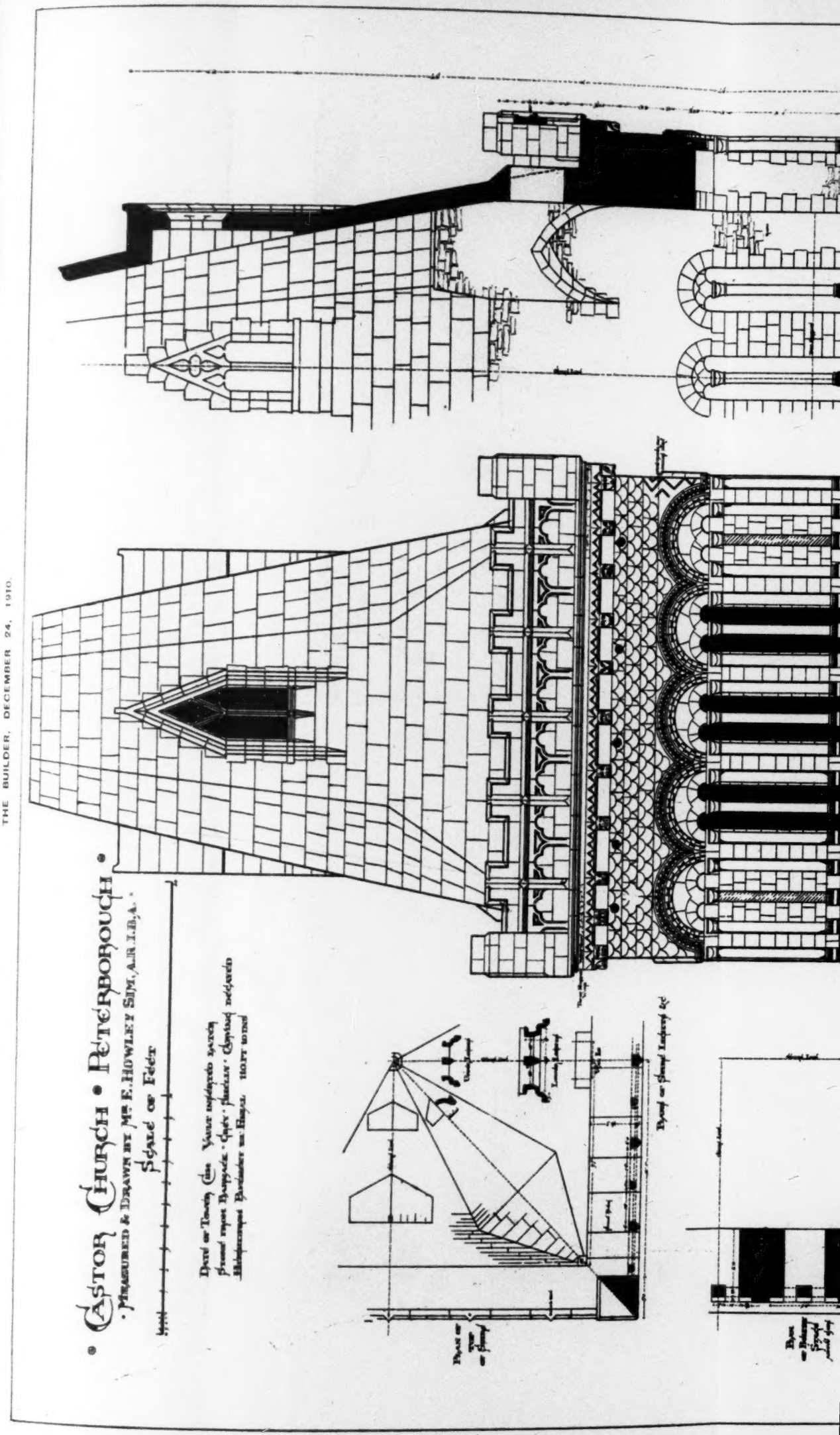

Plan of Basement Storey

Plan of Ground Storey

Plan of Tower, Porch & Steps

Plan of East End of Church

EAST ELEVATION

Section of Tower

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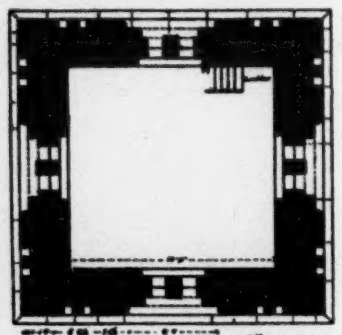
· Castor Church · Peterborough ·

Scale of Feet

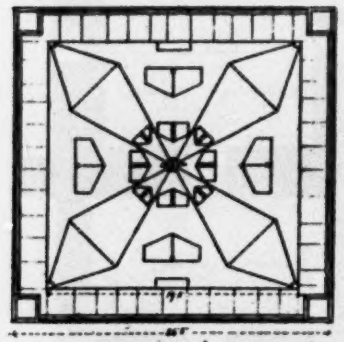
· The Church is dedicated to Saint Kyneburgha · daughter of Penda King of the Mercians

· Measured & Drawn by ·

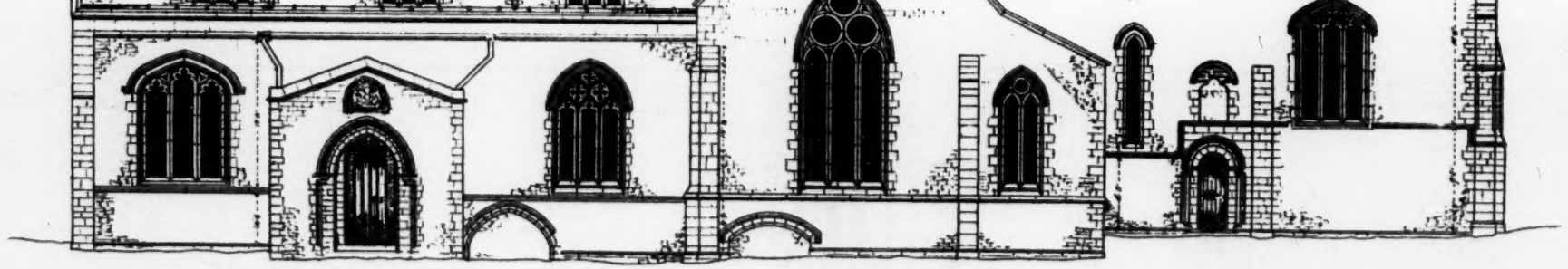
· Mr. E. Howley Sim, A.R.I.B.A. ·



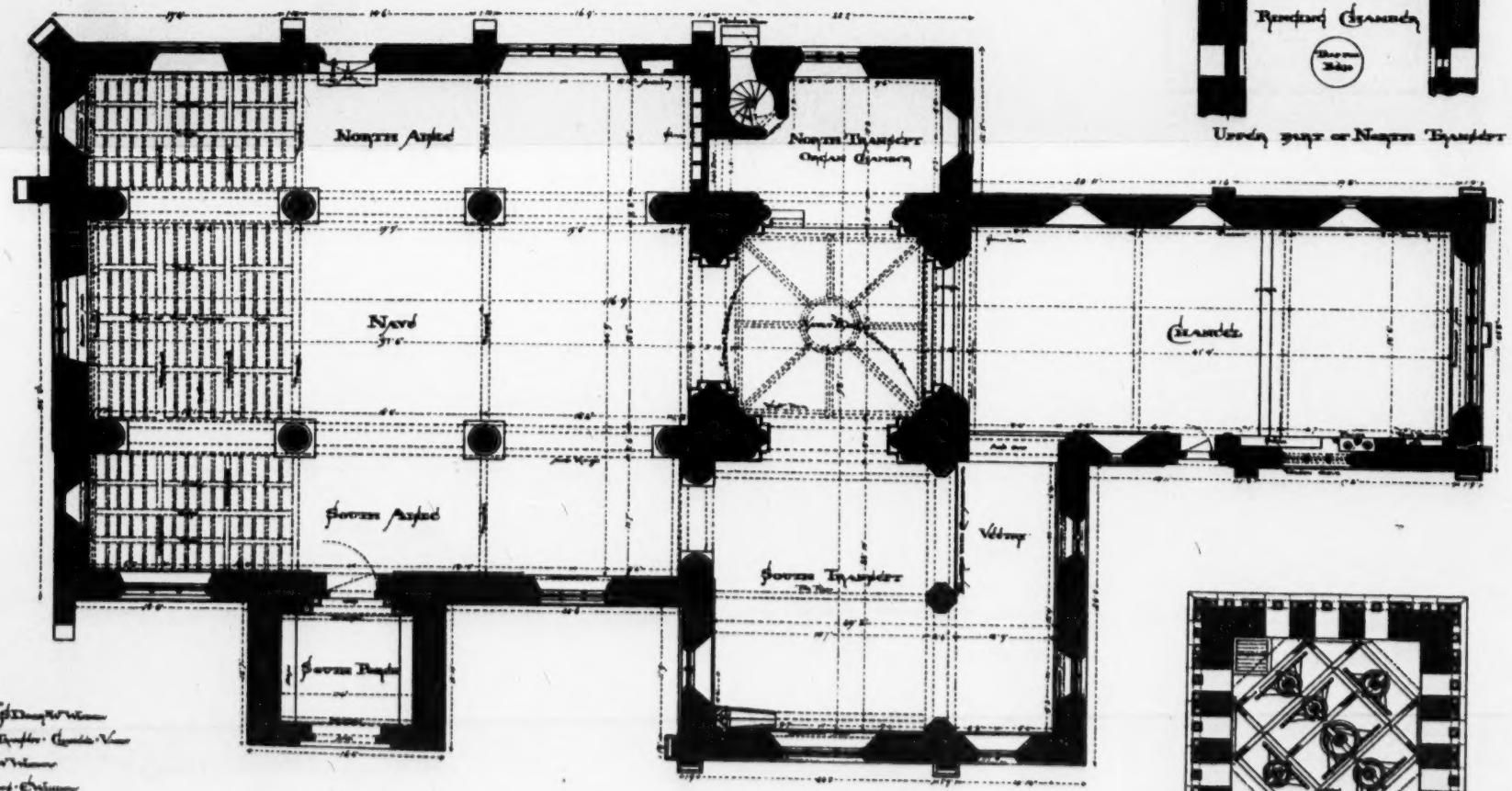
· Plan at Lowest Stage · of Tower



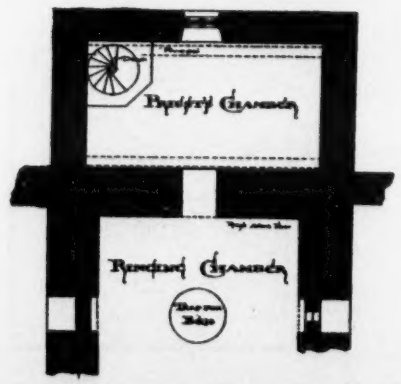
· Plan of Spire ·



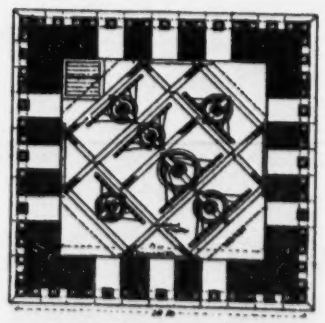
South Elevation



Plan



Upper part of North Transept



Plan of Belfry Stage

Table of Levels

Naves	Floor N. Transept · Sill Door N. Vestry
E. Aisle	Sill Arch · Base · Sill Transept · Chancel Floor
Dble. Aisle	N. Arch · Chancel Window
Tower & Porch	Chancel · Font · Porch · Entrance

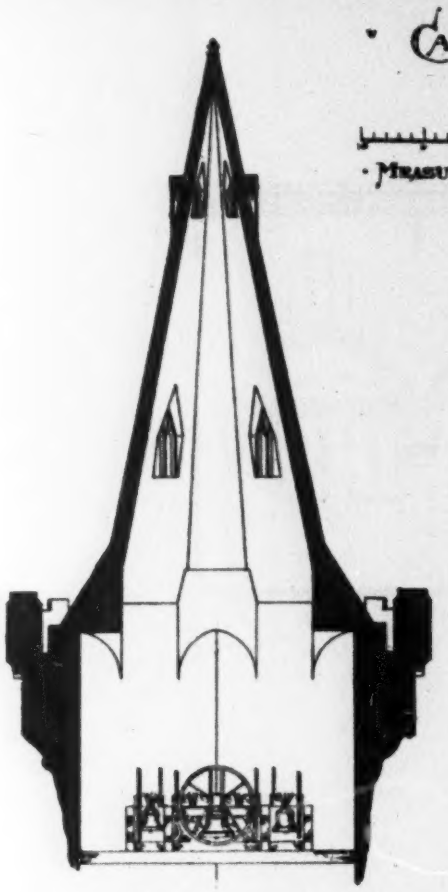
The remainder and four steps down from door to nave

PHOTO-LITHO. SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

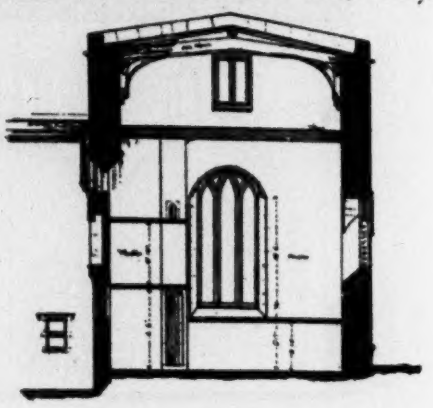
Castor Church · Peterborough ·

Scale of Feet

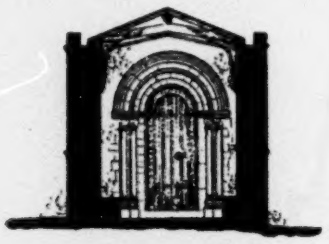
· Measured & Drawn by Mr E. Howley Sim, A.R.I.B.A. ·



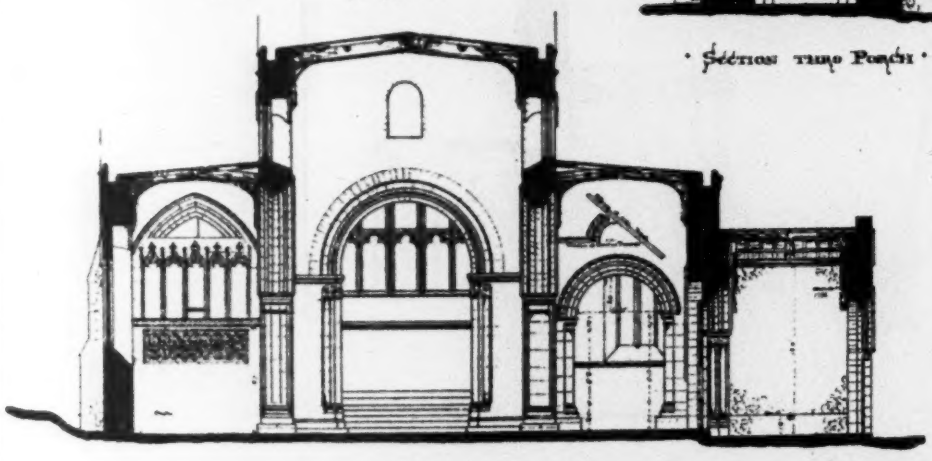
· Diagonal Section of Spire · showing nave carriage



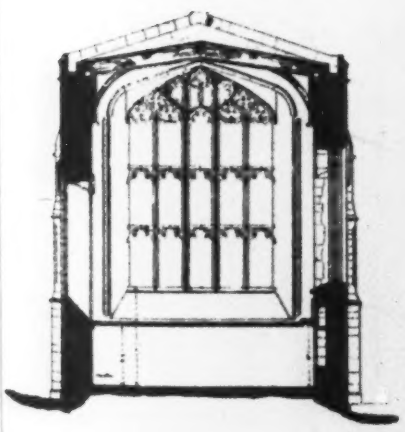
· Section thro North Transept ·



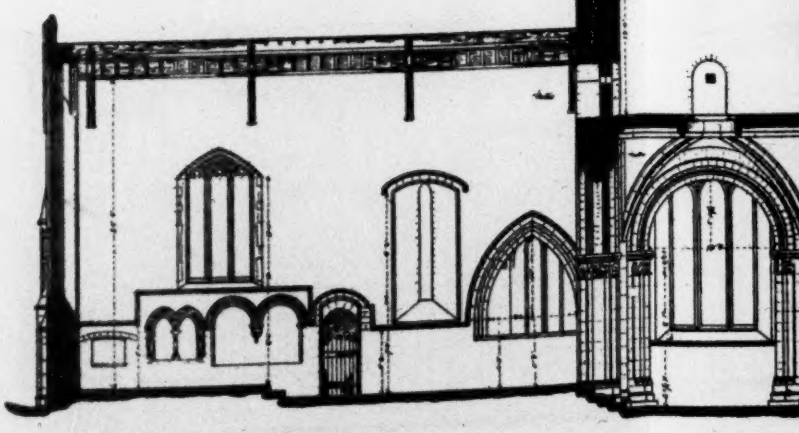
· Section thro Porch ·



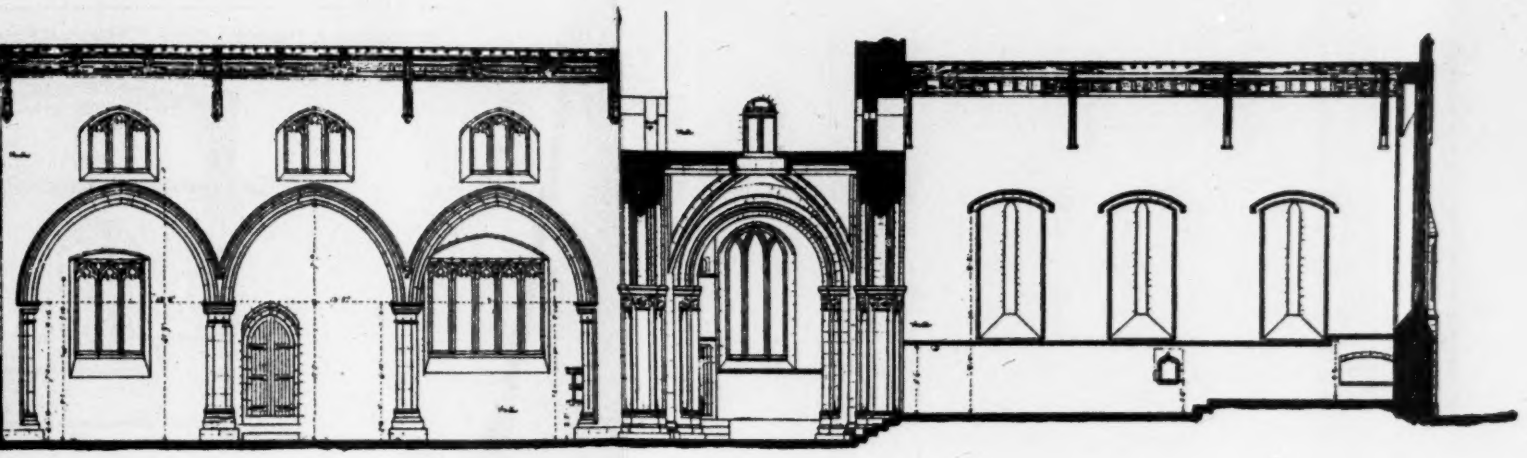
Section thro Nave Looking East ·



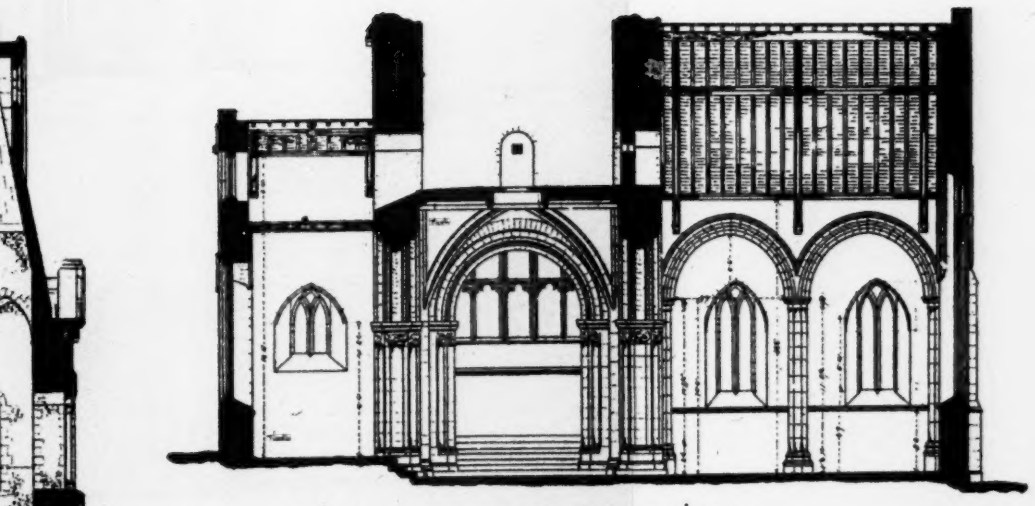
· Section thro Chancel ·



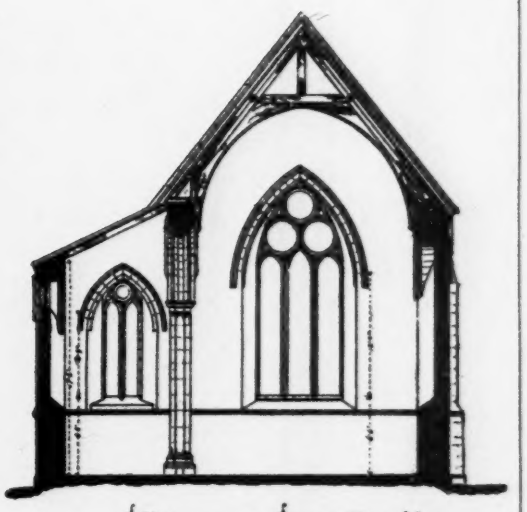
· Longitudinal Section Look



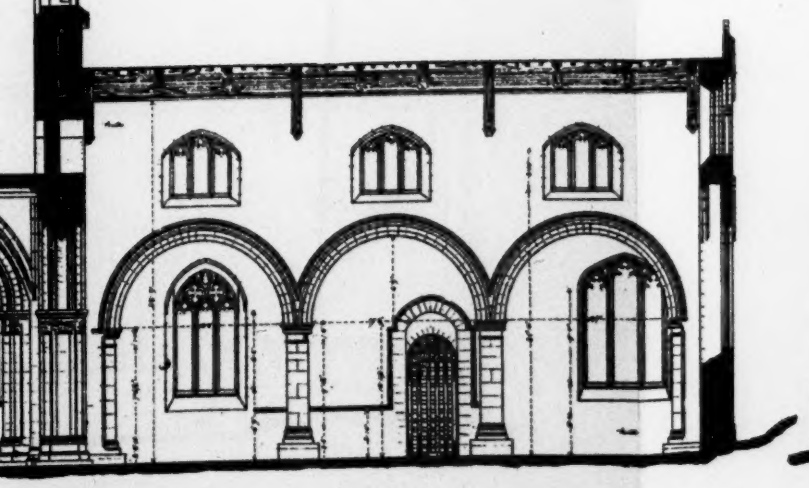
"Longitudinal Section looking North."



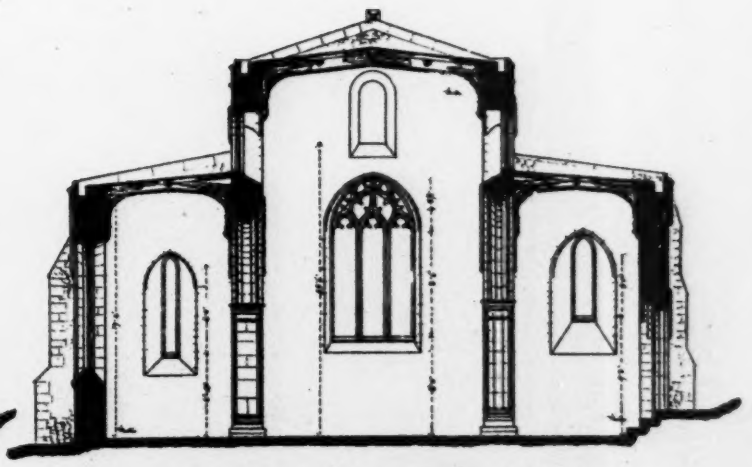
"Section thro Transepts looking East."



Section thro South Transept



"...looking South."



"Section thro Nave Looking West."

PHOTO-LITHO. SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

MONTHLY REVIEW *of* ENGINEERING.

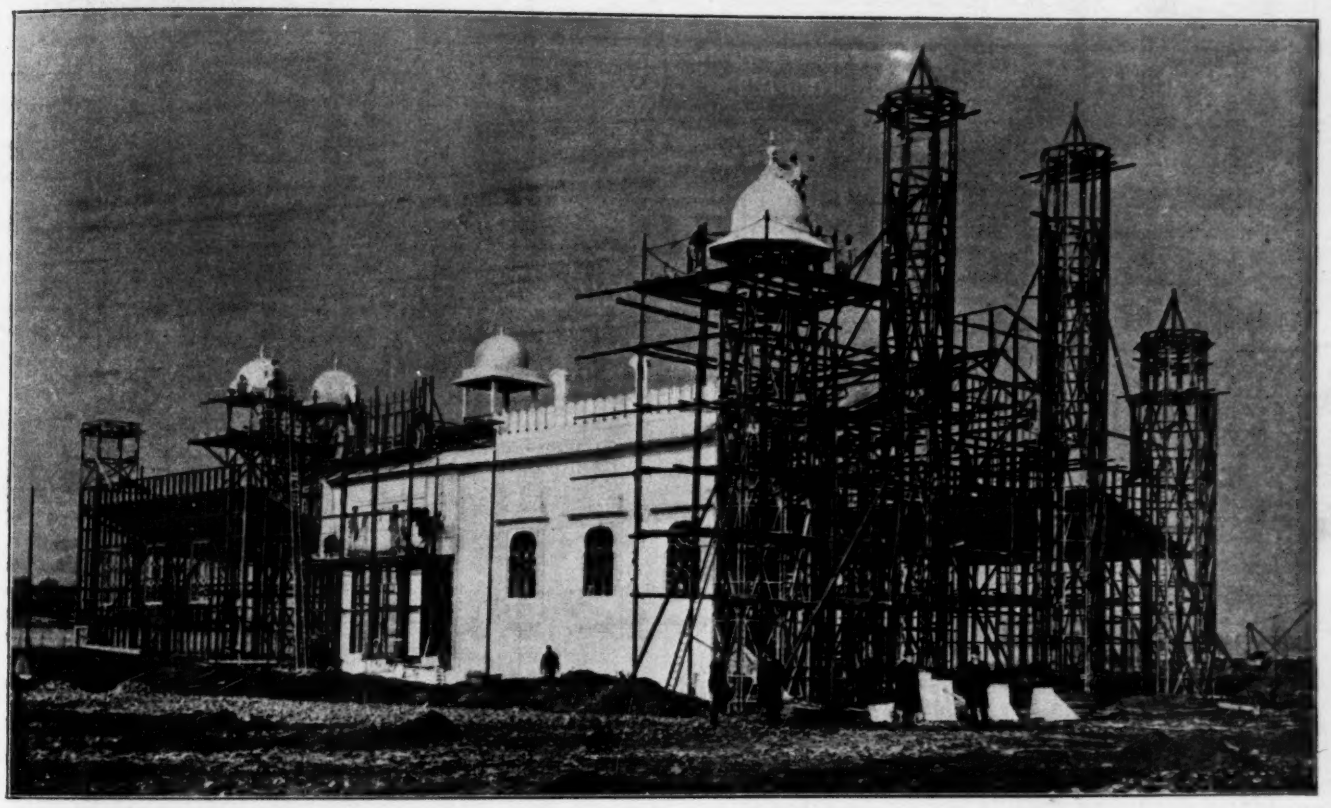


Fig. 1. The Indian Pavilion in Course of Construction.
Messrs. Hardy & Harris, Architects.

EXHIBITION BUILDINGS.—III. THE INDIAN PAVILION, FRANCO-BRITISH EXHIBITION.

IN the present article we devote attention to an interesting example of timber and fibrous plaster construction as applied to one of the buildings at the recent Franco-British Exhibition. The architect was Mr. Thomas E. Hardy, of Messrs. Hardy & Harris, Westminster, to whom a Diploma of Honour was awarded for the work in question.

The architectural treatment of the building was based upon the remains of the XVIth-century Mogul architecture at Fathpur Sikri, and the successful manner in which Mr. Hardy dealt with the task may be judged by the photograph reproduced in Fig. 1. Structural details are illustrated by the various drawings in Figs. 2 to 9. The buildings comprised a light timber frame lined inside and outside with fibrous plaster slabs, no timber being left uncovered, the main roof principals and purlins being of steel, and the roof covering generally of galvanised-iron painted with white Duresco.

The roof principals were not encased in fire-resisting material, but were hidden from view by a velarium consisting of alternate strips of white and unbleached calico, treated chemically so as to render it non-flammable. None of the timber was impregnated, this being considered unnecessary in view of the fire protection afforded by the fibrous plaster casing, and also taking into account the fact that no gallery or upper floor existed. The interior of the pavilion was severely simple, ornamentation having been applied only to the columns and arches supporting the clearstory, and the whole was painted inside and outside with white Duresco. The only coloured decoration was that round the exterior arch and porch of the main entrance and round the interior of the side entrances. The coloured work was designed and executed by Mr. Feroz-ud-Deen, of the Mayo School of Art at Lahore.

The pleasing effect of the interior was considerably enhanced by the general harmony secured between the building and its interior fittings. One specially noteworthy example (due to Mr. B. J. Rose, the Secretary to the Indian Committee) was that

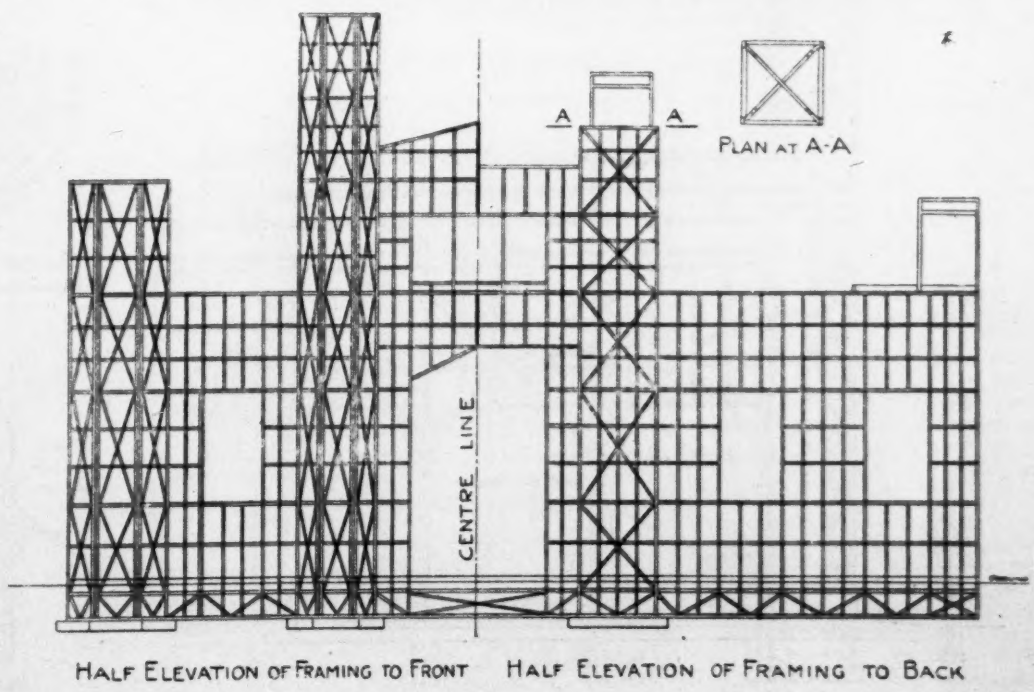


Fig. 2.

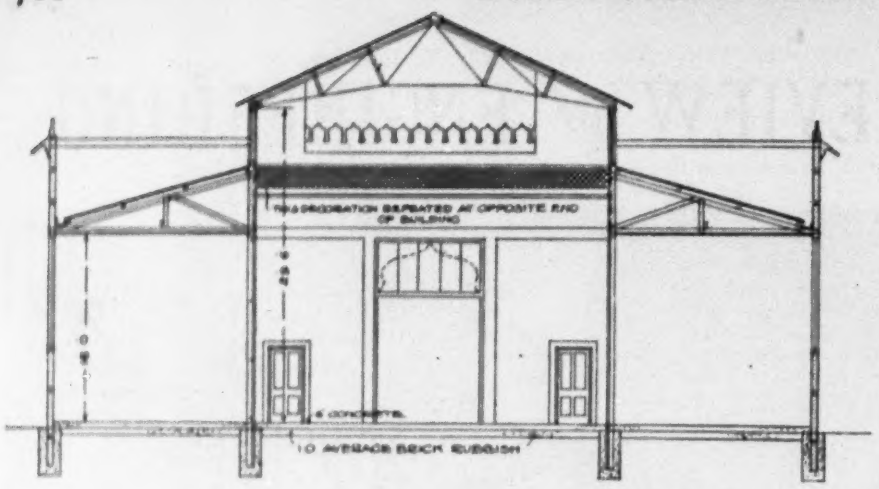
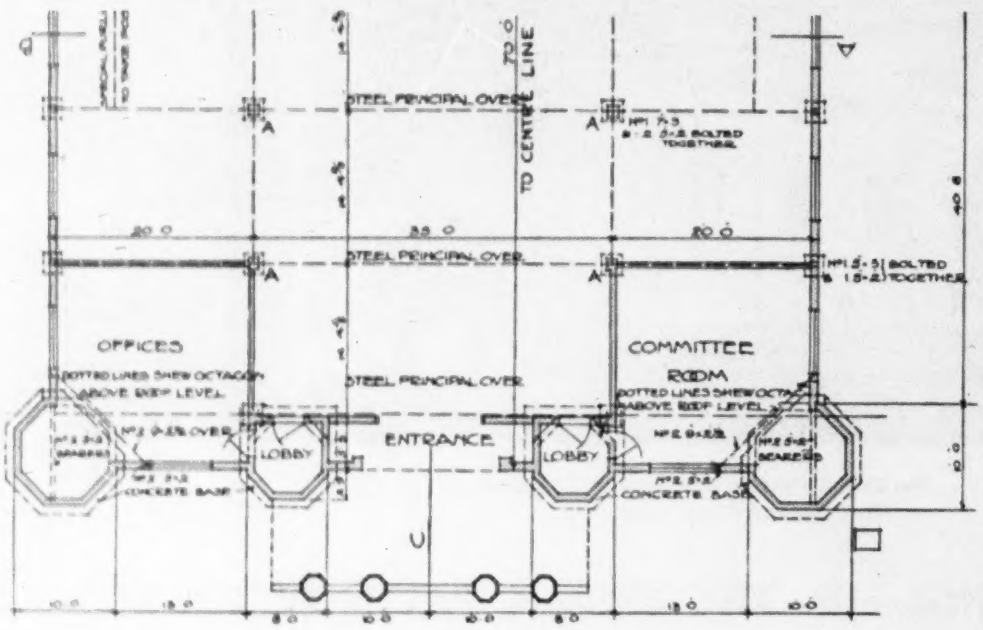


Fig. 3. TRANVERSE SECTION: A B:



PART PLAN INCLUDING FRONT ENTRANCE

Fig. 4

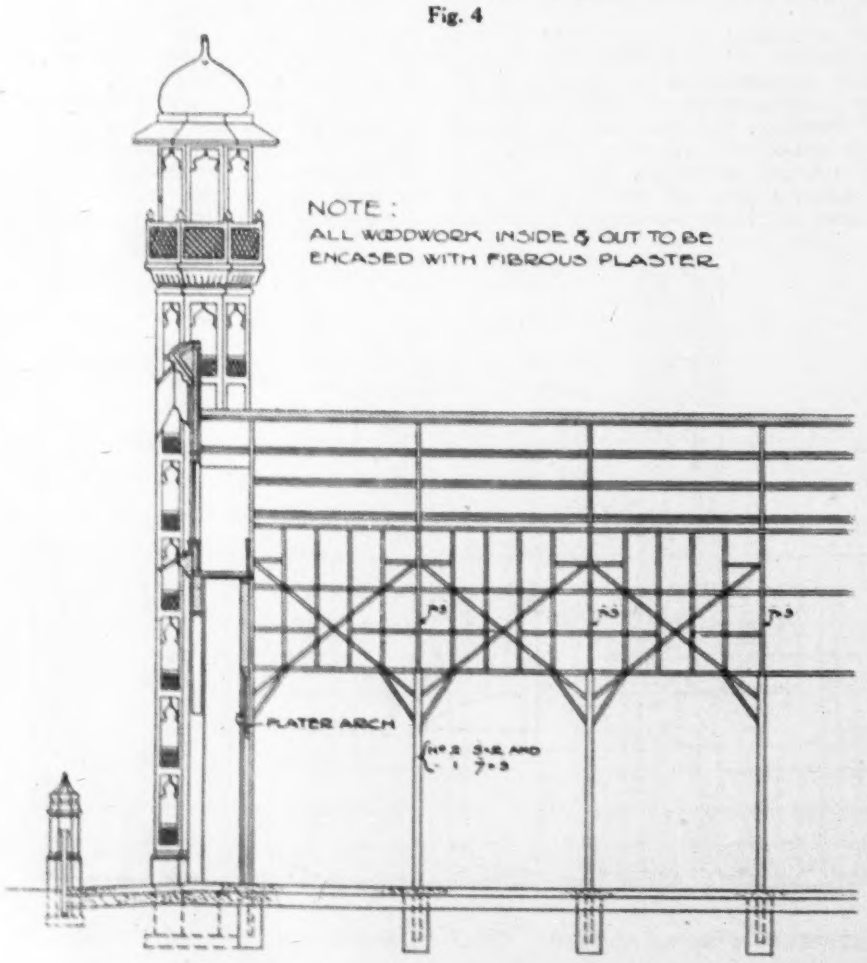
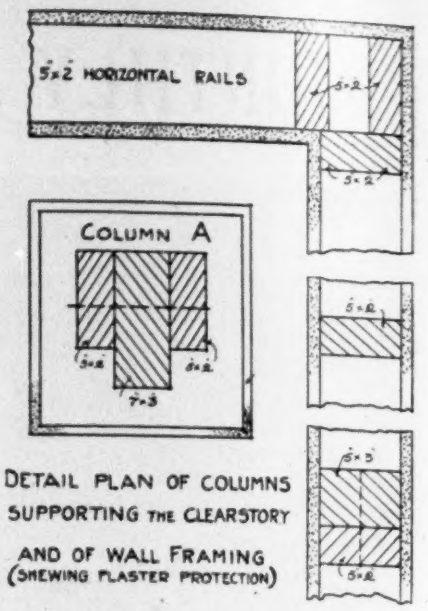


Fig. 5. PART LONGITUDINAL SECTION



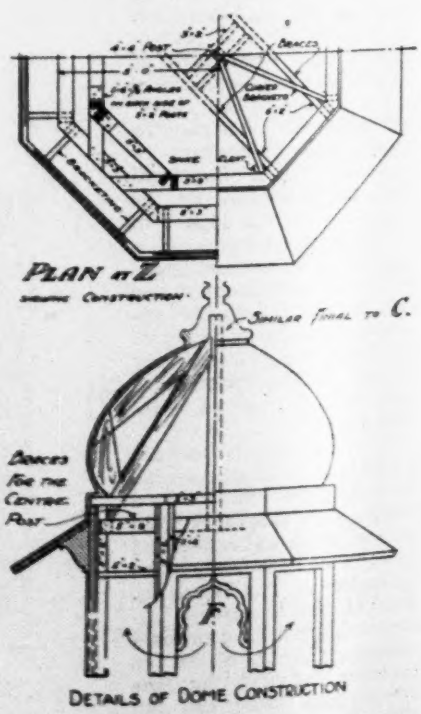
DETAIL PLAN OF COLUMNS SUPPORTING THE CLEARSTORY AND OF WALL FRAMING (SHEWING PLASTER PROTECTION)

Fig. 6.

the large show-cases were designed by the architect to match the general architectural scheme, and constructed of fibrous plaster on timber framework, the whole being painted white, while the ornamental enrichments were cast from actual examples of carved Indian woodwork. The construction of show-cases in this manner was a novel idea which proved advantageous, as the cases not only stood the wear and tear of the exhibition, but were so perfect at its close as to make them an acceptable gift to the Indian section of the Imperial Institute.

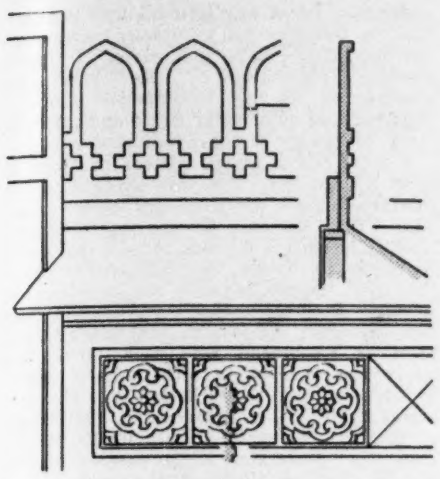
Although the pavilion could not properly be described as a fire-resisting structure in the sense that the term "fireproof" is wrongly applied by many people, it was evidently one offering a fair amount of resistance to flame generated during the early stages of an outbreak of fire, and must certainly be regarded as being infinitely superior to the flimsy canvas-covered wooden frame represented by many exhibition buildings.

Fig. 2 includes two half elevations of the framing, one at the front and the other at the back of the building. It will be noticed that most of the timbers are of one scantling, 5 in. by 2 in., and the same uniformity was preserved as far as possible throughout. The towers were built entirely of 5-in. by 2-in. timbers used in long lengths, and in places where the loads transmitted from the main



DETAILS OF DOME CONSTRUCTION

Fig. 7.



DETAIL OF PARAPET FRIEZE & CORNICE

Fig. 8.

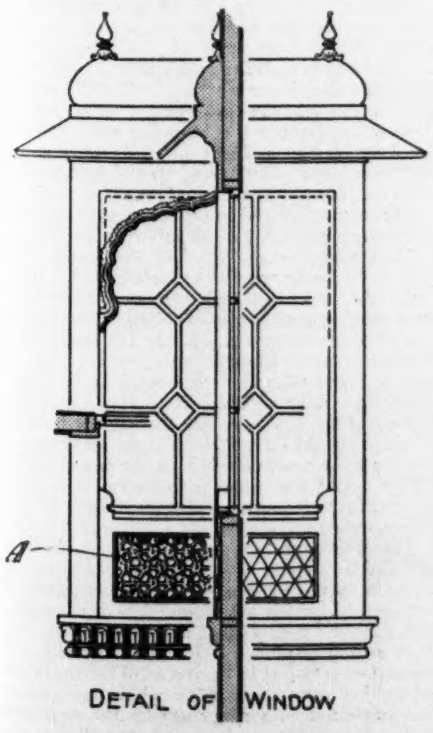
roof principals had to be carried three pieces were bolted together.

By using timber of uniform size considerable economy was secured, and the work of construction was greatly facilitated.

Fig. 3 is a transverse section through the pavilion, showing the timber columns embedded in concrete bases, the main roof principals in steel, and the side roof principals in timber. Fig. 4 is a part plan, where it will be seen that the principals were spaced 14 ft. 4½ in. apart centre to centre, the main hall being 35 ft. wide, flanked by two side galleries, each 20 ft. wide, from centre to centre of the supporting columns.

Fig. 5 is a part longitudinal section illustrating the design of the side framing and one of the small towers, and Fig. 6 includes details representing typical examples of column protection, and the manner in which the wall framing was encased in fibrous plaster slabs. Fig. 7 shows details of the small octagonal domes, Fig. 8 illustrating the decorative treatment of the main parapet frieze and cornice, and Fig. 9 showing the detail of a typical window.

The structural as well as the architectural details of this pavilion appear to have been carefully thought out, and in our opinion the building is one which presents timber framing in a favourable aspect from the standpoint of fire risks. Messrs. Humphreys, Ltd., of Knightsbridge, were the contractors, and Mr. Ernest Benedict, M.Inst.C.E., acted as clerk of the works.



DETAIL OF WINDOW

Fig. 9.

THE STUDY OF WIND PRESSURES.

With the object of obtaining data concerning the resistance of the air, M. Eiffel has recently established in Paris a laboratory furnished with apparatus enabling him to determine the pressure of air upon exposed surfaces, the direction of the air in the neighbourhood, and the pressures at the front and back.

Fig. 1 is a longitudinal section and Fig. 2 a plan of the laboratory, which is 66 ft. long by 40 ft. wide. The front part of the building *a* forms an air reservoir, *b* is a bell-mouth inlet to the test chamber *c*, where an aerodynamic balance *d* carries the test plate, *f* is the fan inlet, *g* is a fan driven by the electric motor *h*, and discharging into the outlet duct *j*, which communicates with the passage *i* between the partition *k* and the outer wall. Gratings are provided in the bell-mouth and fan inlets to insure parallel movement of the air currents, and to regulate suction. A small air lock *l* affords means of entering the test chamber during experiments, without affecting the accuracy of readings.

Air pressure on the surface of the plate exposed to the current of wind passing through the test chamber is measured by an ingenious aerodynamic balance designed by M. Eiffel. The pressure of air against the plate causes one end of the balance to rise, but by placing weights on a platform provided for the purpose equilibrium can be established, the weights added denoting the moment of the force of the air. The instrument is constructed so that test readings can be taken, and in practice the results given have proved very accurate.

The laboratory is equipped with apparatus by whose aid the centres of pressure can be directly determined by a graduated dial attached to an exposed plate fixed on a vertical axis working in top and bottom bearings. As the plate rotates slightly when subject to wind pressure the resultant passes across the vertical axis, and the dial gives the angle made by the plate to the direction of the wind. By plotting various results a curve is obtained showing the centre of pressure for any angle assumed by the plate.

To ascertain the distribution of wind pressure upon the front and back of an exposed plate, a specially-prepared plate is used, having a number of small holes all over its surface, the holes being filled by screws. Measurement of air pressure can be made at any required point by removing one of the screws and inserting a perforated stud connected by flexible tubing with a manometer. It is stated that when individual results so obtained are added together the total agrees with the wind pressure ascertained by the aerodynamic balance.

Some particularly interesting experiments conducted by M. Eiffel were those relating to the direction of air currents around test plates. The method followed was to attach a short and very light filament to the plate and observe the direction it took when under the influence of wind. By taking similar observations at numerous points a fairly accurate idea was obtained of the lines followed by the air at the front and back of the test plates.

Fig. 3 shows the directions taken by air currents about a plate making the angle of 40 deg. with the wind. Fig. 4 represents the variable eddies occurring before and behind a plate at 80 deg. inclination to the wind, and Fig. 5 is an approximate representation of what happens when the plate is perpendicular to the direction of the wind.

These diagrams are reproduced from a paper contributed by M. Eiffel to the French Society of Civil Engineers. The laboratory has not yet been in operation for a sufficient

FIG 1. LONGITUDINAL SECTION

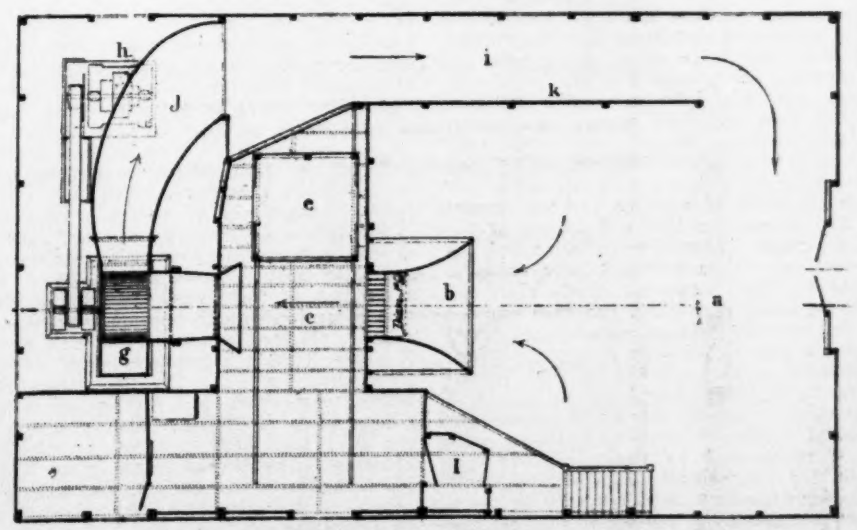


FIG 2. PLAN

Eiffel Aerodynamic Laboratory.

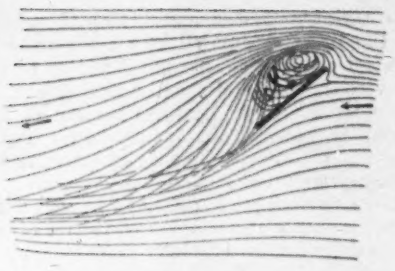


FIG 3 PLATE AT 40° TO DIRECTION OF WIND

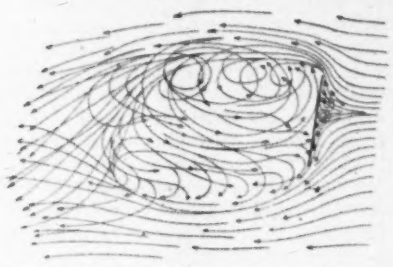


FIG 4 PLATE AT 80° TO DIRECTION OF WIND

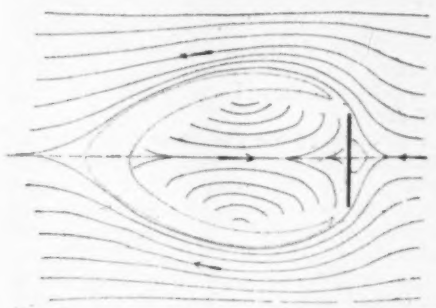


FIG 5 PLATE NORMAL TO DIRECTION OF WIND

Deflection of Air Currents.

length of time to furnish many records concerning the effects of wind pressure, but we are glad to see that M. Eiffel hopes before long to make a further contribution giving particulars of the investigations which are now in progress.

THE PRESERVATION OF IRON IN FERRO-CONCRETE STRUCTURES.

IRON and steel form such important factors in the calculations of the architect, and enter so largely into the work of the builder and of the constructional engineer, that a consideration of some of the elements of these metals and of the changes which they undergo when subjected to exposure for any length of time, under varying conditions, and of the means best suited for their preservation, may prove of interest. The continued multiplication of reinforced concrete structures renders it of importance that all connected with the building trades should be familiar with metallurgical developments, for such knowledge is of great value in determining the properties of reinforced concrete, and the influence which external agents, such as fresh water, salt water, aqueous vapours, smoke, sulphurous acid, ammonia, electric currents, etc., have upon it. Recent research has been centred largely upon the causes of corrosion, and the attempt to find a cure for this evil is one of the main features of metallurgical science at the present day. It is said that there exists at Delhi an iron monument which, since the dim beginning of history, has been exposed to the weather without rust or decay, and yet this column has been provided with no protective coating other than that formed upon it by the atmosphere itself. Is it impossible to manufacture at the present day a metal highly resistant to corrosion, such as is represented by the iron column of Delhi or the splendid examples of hand-forged metal that have come down to us from past centuries, and are in such striking contrast to the pitted, lacelike condition of specimens of modern steel, apparent after only a few years' exposure to the atmosphere? Concurrent with this study there is the investigation of the general subject of protective coatings, which may consist of other metals, such as zinc, tin, copper, and lead; or of oil paints, varnishes, lacquers, and bituminous materials; or, finally, the production of a higher oxide on the surface, as in the Bower-Barf, Wells, and Speller processes.

It appears to be established that the corrosion of iron, like that of other metals, is an electro-chemical phenomenon. It is a unique fact that the presence of very small quantities of impurities suffices to change the physical characteristics of iron entirely. On account of this metallurgists scrutinise the hundredth per cent. of some of the impurities that are associated with this metal. In the case of phosphorus it is important that the amount should be carefully controlled in certain forms of steel, and there is an animated discussion going on at the present time between certain interests as to the maximum amount of phosphorus that a steel shall be allowed to contain, the question at issue amounting to no more than a few hundredths of 1 per cent. Manganese also is a metal which is nearly always associated in modern metallurgy with iron and steel, and any variation in the distribution of manganese means that there will not be a constant electrical conductivity throughout the mass of iron or on any given surface. For these and other reasons, which need not necessarily be enumerated, it must be remembered that in studying iron and steel from the standpoint of their stability under conditions of service a homogeneous pure metal is not being dealt with.

The corrosion of iron does not take place evenly or uniformly over the surface. On the contrary, it is a matter of common observation that iron corrodes rapidly at certain weak points, the effect produced being known as pitting. Dr. Cushman has demonstrated with the aid of the ferroxyl indicator that this effect is produced by local electrolysis. This electrolytic action, which is shown to take place whenever iron rusts, is distinct from the rapid destruction of steel in the neighbourhood of vagabond currents from high potential circuits used for electric lighting or tramways. It is clear that the rusting of iron is primarily due not to attack by oxygen, but by hydrogen in its ironised condition. Nevertheless, the function of oxygen in carrying on the process of rusting, although a secondary one, is essential to its progress, for in the absence of oxygen rust is not found.

The problem that then arises is how to prevent rust and so lessen the risk of corrosion to the metal, and it is this which concerns us most. The application of paint coatings of various kinds constitutes the method which is now generally depended upon for the preservation of iron and steel. Zinc, tin, copper, and lead coatings are used chiefly for preserving roofings and sheathings of buildings; paint, varnishes, bitumens, and cements are the methods in general use for preserving structural steel and iron, which are sometimes processed after manufacture to form a skin of oxide, phosphide, or some other compound. A number of progressive steel makers have been for some time past investigating methods of manufacturing rust-resistant steel, and in the United States an extremely pure metal is now being produced, which is claimed to be rust-resisting. This metal contains 99·95 per cent. iron, the only impurities being sulphur 0·019, phosphorus 0·004, and carbon 0·026. Space would not permit a discussion of the various methods of preservation which depend upon covering iron with other metals, and these must be passed over in order that a question of the highest importance, viz., that of protection with cements, may be considered. If steel reinforcements rust away, it bodes ill for the future of many modern structures, owing to the impossibility of making inspections and repairs before the danger point is reached. The literature on the subject shows that there is conflicting evidence and opinion in regard to it. There can be no doubt that the action of unleashed cement concrete is strongly alkaline, owing to separation of free lime at the time of setting. If this alkaline reaction is maintained, steel embedded in the concrete should remain uncorroded. But poorly-made concrete is not impervious to water. Therefore, if iron is embedded in concrete through which water may be at any time allowed to percolate, the free lime will eventually be removed, and dangerous rusting take place. To insure absolute protection of the reinforcing members of concrete construction the concrete must be sufficiently dense and carefully made to render it practically waterproof.

A point which should always be borne in mind by engineers who are engaged in the reinforced steel constructional work is the need for carefully-drawn specifications, worded in such a manner as will enable the consumer to obtain the full advantage of the most recent research in metallurgical science. Both the producer and the consumer have a direct interest in the product, and there is no reason why each should not study the product in most minute detail. If the producer knows better than the consumer the effect of composition and details of manufacture on the thing made, so also does the consumer, if he studies as he should the behaviour of the materials in science, know better than the producer knows the relation between the composition, the physical properties, or even minute characteristics of the thing made and its successful use.

ENGINEERING NOTES.

Electric Lifts at the New G.P.O.

THE lift equipment at King Edward-buildings, in Newgate-street, comprises twelve large lifts operated by electric motors, using three-phase alternating current, supplied from the generating station of the General Post Office, the whole forming what, we believe, is the largest installation of lifts in this country worked by three-phase current.

One of the lifts, for passenger service, is capable of raising a load of 1 ton to a height of 94 ft. at a speed of 200 ft. per minute. Of the remaining lifts, five are suitable for loads of 1½ tons at 200 ft. per minute, two for loads of 2 tons at 200 ft. per minute, and one for a load of 5 tons at 50 ft. per minute; while the others are for smaller duties.

All the cages are fitted with special passenger safety gear, taking the entire weight if a suspension rope should fail and coming into action if any or all of the suspension ropes should develop undue stretching. The same gear is applied to the counterbalance weights.

A special feature of the installation is the controlling system, operated by continuous current at 210 volts pressure. The lifts are operated by means of pilot switches, and controlled by self-centring detachable handles. The main controllers are provided with magnets arranged to operate circuit-breaking and reversing switches connected with the motors. Each controller includes a device for cutting out resistances in starting the lift and resulting in very smooth accelleration of speed. In the larger lifts a new type of "slowing-down" arrangement is included, designed so that when the cage switch lever is set to the "off" position an electrical brake is brought into action, thereby facilitating the stopping and reducing the duty on the main brakes. Another useful feature is the application of special interlocking cut-outs for protection of the continuous current controller and brake magnets in case the alternating current should fail from any cause. Duplicate brakes are fitted to the larger lifts, each brake being capable of sustaining the total load. As an additional safety precaution a lever is fitted in the cages enabling the attendant to cut off all current and apply the brake by a single motion in cases of emergency. The lift gear is fitted with a patent slack-cable safety switch, the duty of which is to stop the motor and apply the brake in case the cage or balance weight should meet with any obstruction causing the ropes to slacken on the drum. This switch would also come into action in case of the safety gear acting owing to failure of the lifting ropes.

The lifts and equipment were made and installed by Messrs. Waygood & Co., Ltd., and in addition to the various safety devices patented by the firm, which are included in the installation, each lift is also fitted with a Kain over-run limit switch to cut off the main current and prevent over travel in the event of failure in the controlling apparatus. The whole installation was subjected to severe tests by the engineers to the Post Office, and we understand that the results proved entirely satisfactory.

Anti-Rust Treatment for Steel.

A process patented in this country by Professor Lang, of Carlsruhe, for preventing the formation of rust on iron and steel, comprises preliminary treatment of the surface with ferric chloride resulting in the formation of oxide, next the application of aniline sulphate in solution which becomes mixed with the film of oxide, and finally treatment with chromic acid. The coating so produced adheres firmly to the metal, and is said to be very effective in the prevention of rust. If preferred the three ingredients can be mixed with oil and applied as paint, but we imagine the result would not be so efficacious as that afforded by the process first described.

Cableways at Gatun Locks—Panama Canal.

For the deposition of concrete in the construction of the Gatun Locks on the Panama Canal, special cableways have been installed capable of being worked at the speed of 2,500 ft. per minute, which is about three times the limit hitherto considered practicable. The span between the supporting towers is 800 ft., and twenty complete journeys per hour were guaranteed by the makers. The carriages are operated electrically, and controlled by one attendant for each stand. A month or two ago the carriages on two strands of one cableway made twenty-five journeys in one hour, each of them depositing about 50 cubic yds. of concrete. The total amount of concrete to be handled by the plant is 2,000,000 cubic yds. approximately.

G.P.O. New Power Station.

Hitherto the current for electric light and power in the General Post Office has been provided by generating plant in the various buildings at St. Martin's-le-Grand. Concurrently with the erection of the new buildings in Newgate-street, a central generating station and three sub-stations have been built and equipped with the most modern types of machinery and appliances.

The new generating station is situated in Upper Ground-street, near the Southwark end of Blackfriars Bridge, and occupies a site with the river frontage of about 180 ft. and the average depth of nearly 150 ft. The building, designed by H.M. Office of Works, includes a boiler house 136 ft. long by 47 ft. wide by 51 ft. high on the river bank, an engine-room, with the mean length of 120 ft. by about 65 ft. wide by 40 ft. high from floor level to the foot of the steel roof trusses, and accommodation for electrical apparatus, stores, and offices. The building is of the steel skeleton type, with brick panels, and is carried by a concrete foundation raft so as to distribute the loads uniformly over the soil.

We give a section of the power station, showing the general nature of the construction, and illustrating the arrangement of the boiler and generating plant. Fuel is hoisted from barges, moored along the river front, by means of an electric crane on the flat roof of the boiler house, and after being discharged into an automatic weighing machine, is delivered thence by an automatic filler and a bucket conveyor installation into the coal bunkers, which have the collective capacity of 700 tons. The same conveyor, after discharging coal, passes down below the boiler-house floor and removes ashes before ascending to take part again in the handling of fuel. The boiler plant comprises seven water-tube boilers, with automatic stokers, water-softening apparatus, feed pumps, fuel economisers, and other auxiliaries. The chimney shaft is of brick, and extends to the height of 180 ft., the internal diameter being 8 ft. A novel feature in connexion with the boiler house is the smoke mirror, shown in the sectional drawing, by the aid of which the attendants on the switch control gallery in the engine-room can at once detect any discharge of visible smoke from the top of the boiler chimney. The generating plant includes two 1,000 kilowatt and one 500 kilowatt turbo-alternators, the arrangement being as illustrated in the section. These machines furnish three-phase current at 6,600 volts pressure to the three sub-stations, situated respectively in the basement stories of King Edward-buildings, G.P.O. West, and the establishment at Carter-lane. Here the current is converted and transformed to suit lighting and power requirements, and at the G.P.O. West sub-station a large storage battery insures continuity of service for the entire installation, which certainly represents a considerable advance on the plant previously available.

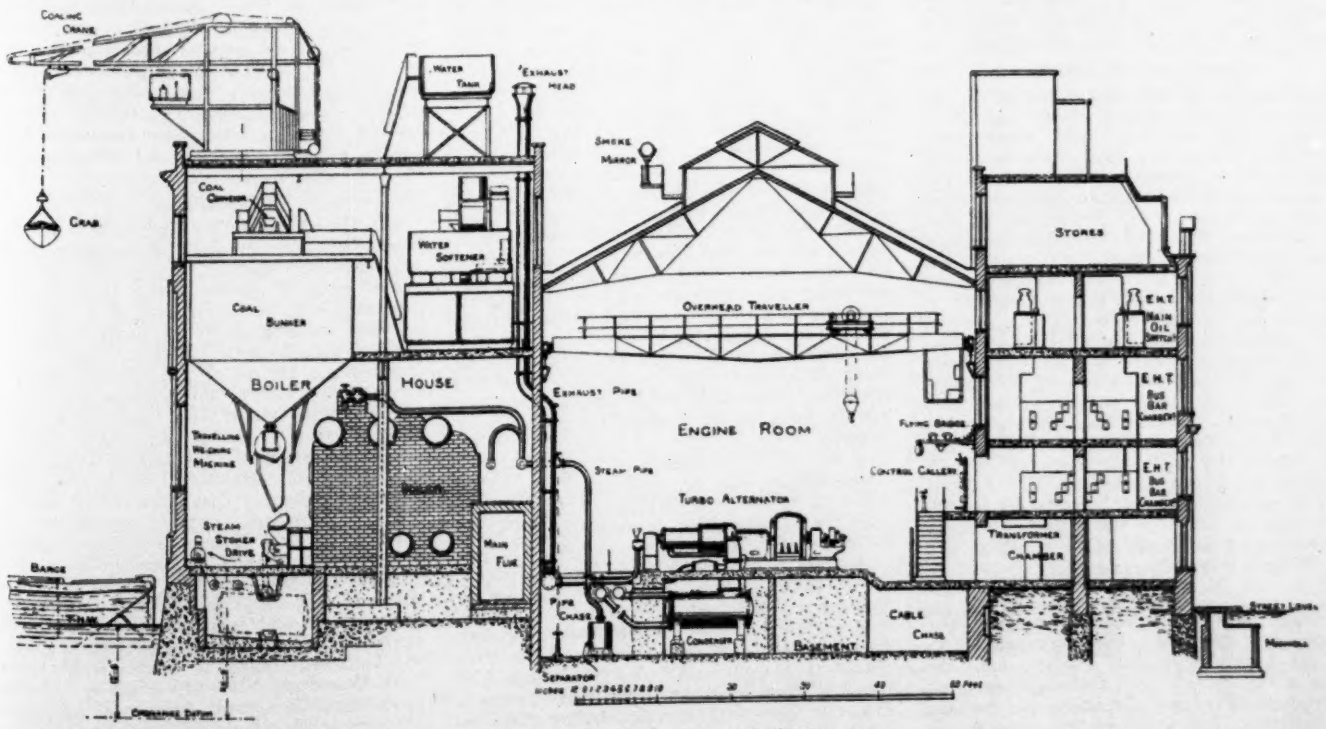
Paris a Seaport.

We extract the following from a communication of a Paris correspondent to the *Times*:—

"The exceptional risings of the Seine have given renewed actuality to an already very old plan of converting Paris into a seaport. To protect Paris effectively against floods it has been proposed in several quarters either to create a canal by diversion of the river or to deepen the existing bed of the Seine. It seemed quite natural to extend plans of this kind still further. Works being necessary to prevent a return of the high waters of last January, the suggestion has been made that it would be very simple, with some supplementary expenditure, to render the proposed canals or channels capable of conveying as far as Paris, without breaking bulk, the boats which at present stop at Rouen. In 1881 M. Bouquet de la Grye drew up a project for uniting Paris directly to Havre. This project contemplated an expenditure of 316,000,000f., and seemed too ambitious. In 1885 its author produced a smaller scheme, which is brought forward again to-day. The estimate was reduced to 150,000,000f. The proposal was to deepen the bed of the Seine only from Rouen to Paris. The channel thus created would be 35 metres wide at the bottom in the straight parts, 45 metres in the curves. The depth would be 6m. 20cm., admitting at all times of the passage of ships of 5m. 90cm., and at a push of 6 metres. That is the draught of all the vessels which break bulk at Rouen. To-day the cost of executing M. Bouquet de la Grye's plan would have to be largely increased, necessitating a corresponding increase in the tolls. In these circumstances the transport would not appear likely to be more economical by the big boats which would ascend the canal than by the existing barges. It has been estimated that the price per ton sold in Paris would not be less than 7f. 50c., whilst by small vessels it comes to 3f. or 3f. 50c. Advocates of 'Paris a seaport' ask that the State should undertake the cost of executing the work, and that no toll should be imposed. They point to the advantage to the nation which a canal of this kind would afford in times of flood, and as an auxiliary route for the victualling of the capital. The argument has a certain value after the railway strike, and more especially in presence of the existing congestion of the railway between Paris and Havre. It is possible, however, that it would be more profitable and more expeditious to double this railway. As traced the channel follows the course of the Seine almost in its entirety except at two points—between Oissel and Pont de l'Arche, near Elbeuf, and between Bezons and Sartrouville, near Paris—the latter in order to cut two curves of the Seine with a very sharp curvature and numerous bridges. Its length is 33km. shorter than that of the Seine—185km. instead of 218km. Notwithstanding the campaign which has been conducted recently in certain Parisian newspapers, the project of converting Paris into a seaport will probably continue to slumber in its portfolios. Many other public works in France are more urgent and will suffice to employ a large part of the available French capital."

A Large Earthen Embankment.

An irrigation dam constructed near the Belle Fourche River in South Dakota is one of the largest earthen embankments in the world. With the length of 6,200 ft. and the maximum height of 115 ft., the dam embodies some 1,675,000 cubic yds. of earth, the inner face, having the batter of 2 to 1, being protected by a 2-ft. layer of gravel, pitched with concrete blocks measuring 6 ft. long by 4 ft. wide by 8 in. thick. The dam is built across the outlet of a depression, and the reservoir is supplied by water from the river through an inlet channel 6½ miles long by 40 ft. wide at the bottom. In connexion with the reservoir a system of distribution canals is being completed for irrigating some 100,000 acres of land.



Section of G.P.O. Power Station.

THE POST OFFICE LONDON DIRECTORY FOR 1911.

THE Post Office London Directory with London County Suburbs for the ensuing year has been issued, with two maps, by Messrs. Kelly's Directories, Ltd., 182-4, High Holborn, W.C., and we notice that the several divisions of the work have, as usual, been corrected down to the latest date compatible with the appearance of the Directory in the middle of December. That it is a remarkable work everyone who has had occasion to use it will agree, and the amount of labour involved in its preparation each year in order to make it the accurate work it is must be enormous. We have used the Directory for many years, and we do not remember ever to have detected an error, and the clearness of the print and the excellence of the general arrangement make it an easy task to find what is wanted, with the possible exception of the classification of Societies in the Trades section. The general arrangement of the work is so well known that we need not enter into details; it is sufficient to say that this, the 112th annual publication of an indispensable work, is a model of what a directory should be, though its 3,500 pages make it a rather cumbersome book.

The London Directory is published annually, about the second week in December, and may be had in the following forms:—Complete Edition, 32s.; Small Edition, 18s., containing the Official, Commercial, Court, Parliamentary, Postal, and Banking; Commercial only 12s.; Trades, 12s.; Streets, 12s.; Court, 5s.; Banking, 3s. The Directory and the County Suburbs Directory may be had, printed on fine paper, bound together in one volume, at the price of 40s., or, printed on the usual paper, in two volumes, price 43s. 6d.

THE CONCRETE INSTITUTE:
GENERAL CONCRETE PRACTICE.

THE following is an abstract of a paper on "General Concrete Practice" which was read by Mr. T. Potter at the thirteenth ordinary general meeting of the Concrete Institute held on Thursday, December 15, at the Royal United Service Institution, Whitehall, London, S.W., Sir Henry Tanner (President) in the chair:—

"Concrete practitioners in the past, engaged in building practice, appear to have kept their experience very much to themselves, except in connexion with engineering works and specialities in connexion with reinforcement for walls, floors, roofs, and similar purposes which have been dealt with in a voluminous manner by specialists and patentees. This paper, therefore, has been confined to the use of concrete in connexion with buildings, apart from any association with reinforcement or steelwork, for the consideration of which the limited time at disposal does not permit.

Theory and Practice.

Concrete and its application appear to set most theories at defiance; many that have been proposed hitherto, with every good reason for acceptance, have been negatived in practice. No doubt, eventually, there will be much valuable information and data made common in connexion with the use of concrete that may be relied on by the architect, builder, and clerk of works. At present the information available is not altogether of that character. For this reason treatises on concrete, written only a few years ago even, based principally on theoretical deductions should be read with caution. Its very simplicity has led to its abuse, for it has been, and is still, often considered that anything nearest to hand—for instance, pit gravel of any description, broken stone, and brickbats mixed with all kinds of rubbish—will do for an aggregate, that the cheapest cement in the market is quite good enough for a matrice, and that the cleanliness of the water requires no consideration, anything will do. This is altogether wrong.

Labour.

Another factor is the human equation. The cement may be good, the aggregate of a suitable nature and well graded, and the water clean, but if the materials are not thoroughly mixed and the water not suitably proportioned, the value of the concrete is seriously diminished. Machine mixing remedies this to a great extent, but for many building purposes mixing machines do not seem as yet to find much favour. The mixing of concrete is not a favourite occupation with workmen; it is laborious work which can be lessened if the materials are not wrist-turned, but simply lifted in the shovel and deposited close at hand without being turned over. Workmen who are efficient as labourers in most directions are not always equally so as concrete workers. In my experience the better class of country labourers are by far the best for the purpose; they are willing, have no preconceived notions as to the fitness of things, and are tractable. Many town labourers are very much the reverse.

Suitable Aggregates.

The principal materials more or less adapted for aggregates—most of which I have used—are granite and other stone quarry chippings, broken brick or tile-yard *débris*, burnt clay, slag from iron ore, flints, furnace or boiler ashes, coke breeze, and chalk. Chalk would be rarely used in an ordinary way, more especially the top strata, which is soft, porous, and easily affected by frost, but I have used it where it was difficult to obtain any other except from a long distance. For small holdings in chalk districts no doubt good substantial dry walls can be made with chalk concrete where better aggregates cannot be obtained.

Coke Breeze.

Coke breeze as an aggregate is thought by many to be beneath notice. It was extensively used for many years principally for floors, but, I submit, undeservedly lost its character some time since through a letter in the *Times* telling of its failure in Germany, where it had been prohibited. It was not stated, I believe, of what class of coal it formed the residue, and this is an important point. I have seen some in Scotland totally unfit for concrete purposes, but not in England. This letter was followed by others telling how it was of such an inflammable nature that, if exposed to a severe fire, it was second only to coal in assisting combustion. Another letter stated that it disintegrated in the course of a few years and crumbled away. It was a case of giving a dog a bad name, I think. So far as its strength is concerned, Mr. Kirkaldy made some experiments for the West Ham Corporation some years since, with the following result:—A brick pier 18 in. square and 18 in. in height made with best stock bricks and blue lias lime mortar crushed at the end of two years with 46 tons per square foot; a similar pier of Harold Wood bricks and blue lias lime mortar crushed with 75 tons per square foot; another pier made of six parts of coke breeze to one part of Portland cement crushed with 131 tons per square foot. As to inflammability, the tests made by the Fire Prevention Committee with various kinds of floors, each under similar conditions—exposed for three hours to an increasing and ultimate temperature of 1,900° F. and water played on them from a hose pipe—gave the following results:—Coke breeze and burnt ballast equal and best; each was found, after being allowed to cool, practically free from cracks or deflection, and Thames ballast and granite chips the worst. I have used some thousands of tons of coke breeze for floors and do not remember a failure of any kind therewith. I am aware that coke breeze is condemned by many as an unsuitable aggregate. I can only speak from my own experience, and, although it is not, taken altogether, the best material for floors and roofs, I have found it one of the best. But, like other materials, there are good, bad, and indifferent qualities; I have known ashes from dustholes to be mixed with it.

Ashes.

One of the best aggregates for most purposes is ashes from locomotive boilers. It contains no impurities, is obtainable at most railway-stations, and is inexpensive, but one company (the London and South-Western) allow their engine drivers when passing through a lias limestone district to use fragments of limestone in the furnaces to economise the coal consumption. How they obtain it I cannot say, but it is not very perceptible among the ashes and does not shake perhaps for some time after the concrete has been in place, but when it does it entirely ruptures the concrete. I have known floors and stairs to be entirely reconstructed as a result. I believe no other railway company sanctions this, but where locomotive ashes are employed inquiry should be made relative thereto.

Plaster of Paris.

As is well known, plaster of Paris was used as a matrice previous to the employment of Portland cement. Where alterations have been made to buildings with floors of this description the old concrete has sometimes been reused as an aggregate, with the result that expansion has taken place and the concrete been ruined.

Aggregates that have passed through fire are charged more or less with sulphur, and slag from iron ore more than any other. The only way to liberate the sulphur that I know of is to expose it to the atmosphere for as long a period as possible. I have used slag that had been aerated for a long period, which made concrete less susceptible to change of form than any other aggregate. United States Government tests have proved that the carbonate of lime, which forms so large a constituent of Portland cement, neutralises the effect of sulphur in aggregates to a great extent.

Parts of Aggregates Equivalent to Sand.

It is usual to specify that the sandy and dirty element in some aggregates shall be screened out and replaced by coarse, sharp sand, but I could never understand the object of this. The coarse, sandy element of suitable aggregates, such as slag, furnace ashes, brick *débris* or crushed stone chippings, is every way as good as pit or Thames sand, but it is desirable to eliminate the portion below the size of coarse sand, and I assume it is considered impracticable to remove one without the other. But my experience is that it is more economical and effectual to wash out the fine dirty and dusty particles and leave in the coarse sandy ones. Strange to say, I cannot call to mind ever at any time mixing sand with an aggregate or being called upon to do so. River gravels, as a rule, contain sufficient, and a stone crusher can be set to reduce any material to make quite enough for the purpose.

Grading Aggregate.

The size of the aggregate has long been a disputed point, but United States Government tests have confirmed what has always been my practice, namely, that no matter the purpose for which it is used the coarser the aggregate, provided perfect homogeneity or denseness is secured, the stronger the concrete. The size, however, depends upon the nature of the work. A very coarse aggregate, so that it is graded by intermediate sizes down to that of coarse sand, would be the best for wide and deep foundations, but far too coarse for floors, roofs, walls, or partitions; it depends entirely upon their thickness. It has been attempted to standardise the size of aggregates for various purposes, but I submit that it is impossible; it depends entirely upon good grading, and there are few materials which come to hand in their natural state or converted by a crusher that are well graded.

Cleanliness.

The cleanliness of the aggregate is another factor of the greatest importance. Most aggregates are unclean, except perhaps river gravel from a quick-running stream. Very few pit gravels are clean, and, as a rule, they are the most difficult to wash; they are usually mixed with unctious clay, which is difficult to get rid of, and which is injurious to cement. If clean the particles are usually of a rounded shape, the result of attrition at some former period and not a desirable one for an aggregate. It may be thought that quarry waste, brickyard *débris*, slag, and materials generally that have passed through fire are quite free from deleterious matter; but they are not. If they have passed through fire and been broken by hand or by a stone crusher, the particles will be found covered with a fine, impalpable dust, almost imperceptible. If washed in a tub, as an experiment, and kept well stirred, the water will be found charged to a considerable extent with this dusty element, which is injurious to cement. Practically nearly all aggregates are very much improved by washing, which is an economic process if measured by strength.

Mixing Concrete.

The aggregate and matrice should be turned over twice dry and twice while water is being added, and never less; the more they are mixed the better the concrete and the more readily the various-sized particles find their respective positions in the mass. For many years it was advocated that only as much water should be used as will coat the aggregate with the cement and render the concrete of a sticky character. Actual practice is convincing enough to prove that this is wrong. The particles of the aggregate do not slide easily into place and the concrete is not dense. But if the concrete is in a sloppy condition better homogeneity, or denseness is the result. It is almost needless to say that the water used in mixing the concrete should be clean; if otherwise it is equal to using an unclean aggregate.

Plums or Packing.

What are known in the United States as "plums," but which I have always called "packing," are pieces of broken stone or quarry waste or other suitable materials of considerable size embedded in the soft concrete as the work proceeds. Packing may be any size so long as it does not reach the vertical faces of foundations or monolithic walls by at least 2 in., and the particles are kept apart at least 2 in.; and are well rubbed in the soft mass, not merely laid on the concrete. Obviously the material must be clean. Some practitioners claim that packing adds to the strength of concrete and if carefully dealt with it certainly does not diminish it, so far as my experience goes, and lessens the cost.

Concrete Walls.

The disadvantage of building monolithic concrete walls is the cost of the forms or shuttering necessary for forming the troughs in which the concrete is to be deposited. In some cases it is common knowledge that it has cost as much as the concrete. In addition, unless it forms a backing to stone or brickwork, it has to be cemented or rough-cast externally, so that the cost is often more than brickwork. For buildings of some magnitude, of a plain character, free from irregularities of plan, and of a simple design, such as warehouses, farm buildings, and factories, it can be used in most cases to advantage, so far as regards cost, while it possesses much greater strength and durability and freedom from the necessity of repairs—more so than ordinary brick walls. It is too early to affirm how long monolithic Portland cement concrete buildings are going to last, but there is not much doubt on that point. The oldest in this country probably does not exceed forty-five to fifty years. With regard to monolithic concrete walls being weather-proof, I have never known an instance of their being otherwise if they were cemented or rough-cast externally.

We are told at times that plastered concrete walls are subject to condensation, but they are not more so than walls of stone or brick or as much, with the further advantage that, after a period of six months or thereabouts, condensation very rarely occurs in an ordinary house owing to the walls being of a more equable temperature. The concrete walls of a public building when the latter is crowded may given evidence of condensation, but that does not come within my experience. As a hygienic material concrete is superior to any other. If we go into the rooms of a brick house after they have been shut up for some time there is often a musty, fungussy smell prevailing. I never found this in a concrete house or cottage after being closed for a time.

The rooms in a well-built concrete house are cooler in summer and warmer in winter than those of a brick house, as concrete walls are more equable in temperature owing to being non-absorbent and not so readily chilled as brickwork.

The Future of Concrete.

With regard to the future of concrete for buildings and allied purposes in large towns, its present use seems to indicate that it will be confined principally to floors and roofs and in connexion wth skeleton steel frame construction and certain purposes for which cement and granite chips can be employed, such as pavings, steps, stairs, sills, lintels, etc. Monolithic reinforced walls will possibly not find much favour; there is the difficulty of external surface treatment, the cost of temporary forms and minor difficulties which would not occur in most districts. In the country there should be more scope for the use of concrete. Eventually concrete building may be, and should be, a distinct occupation. The walls of factories, workshops, warehouses, and a similar class of buildings where no great architectural efforts are needed, and which are simple in plan and arrangement, can be built at a less cost than with brick or stone, and for farm buildings it is still better adapted, as it is applicable not only to walls, but to pavings for livestock places and for floors, and almost the entire fitments. Mangers, feeding-troughs, water-troughs, tanks for storing rainwater, stable stall divisions, channel gutters, and manure pits are all better executed with concrete than with any other material, and at a less cost.

Buildings of this class are practically free from the farmer's enemies, rats and mice, or can be made so with a little care. Rats, the most cunning of rodents, very much dislike concrete buildings. They can bore their way through a brick wall, but they never attempt to practise on a well-constructed concrete wall, and are averse to occupying buildings that afford no better retreat than open doors and harbours of refuge which are not out of the reach of man and dog. On hygienic grounds it is superior to most other materials for farm buildings. Healthy surroundings are almost as much a necessity for cattle as for human beings. For cottages and buildings, for small holdings it is also well adapted. Where low-lying grass lands and meadows are intersected by running streams there is a necessity for foot-bridges, cattle bridges, sluices, hatchways, sheepways, etc., and for which there is nothing that can compare with concrete for economy of cost and durability."

Discussion followed the reading of the paper, in which Mr. E. Fiander Etchells, Mr. S. Bylander, Mr. R. W. Vawdrey, Mr. E. Wait, Mr. Henry Puplett, Mr. L. Serraillier, and Sir Henry Tanner took part.

MASTER BUILDERS' ASSOCIATIONS, etc.

The Hartlepools Master Builders' Association.

The annual meeting of the members of the Hartlepools Master Builders' Association was held on the 14th inst. in the Oddfellows' Hall, York-road, Mr. J. W. Moore (President) in the chair.

The Treasurer's report showed that notwithstanding the unsatisfactory condition of the trade in the district the year's working left a small margin on the right side.

The President gave a report of the proceedings at the annual meeting of the Northern Federation, held at Stockton, and it was decided to invite the representatives of the Building Trades Employers' Northern Federation to hold their summer meeting in West Hartlepool. The Secretary was instructed to purchase sufficient copies of the year-book and directory to be published by the Northern Counties for circulation amongst the members. A resolution was passed deciding to contribute to the fund for the entertainment of the delegates attending the National Federation meeting, which it is expected will be held in Newcastle next year.

Mr. J. W. Moore was chosen to represent the Association at the national meeting to be held in London next month.

The officers for the coming year were elected as follows:—President, Mr. J. W. Moore; Vice-Presidents, Messrs. John Proud and E. M. Tweddle; Trustees, Messrs. Thomas Beetham, W. Pearson, and Robert Watt; Committee, Messrs. D. Corbett, T. Corbett, F. M. Gibbon, G. H. Jackson, R. Mothersdale, R. Marshall, W. Pearson, A. Stephenson, and W. M. Thompson; Secretary and Treasurer, Mr. E. Moody

Representatives to the Tees-side Association and Northern Federation for 1911 were also elected.

Sunderland and District Building Trades' Association.

The annual dinner of the Sunderland and District Building Trades Association took place at the Grand Hotel, Bridge-street, on the 15th inst. Mr. J. Morice Wright (President of the Association) presided, and there were also present the Mayor (Alderman Sanderson), the Town Clerk (Mr. F. M. Bowey), Mr. S. Smethurst (President of the National Federation of Building Trade Employers), Mr. A. G. White (Secretary of the National Federation of Building Trade Employers), Mr. John W. Moncur, Mr. John W. White (Senior Vice-President of the National Federation of Building Trade Employers), Mr. John Emmerson (Vice-President of the Sunderland Association), Mr. F. W. Ranken (President of the Northern Counties Federation of Building Trade Employers), Councillor W. H. Hope (Secretary to the Association), and others.

After the loyal toasts had been honoured on the proposition of the Chairman, Mr. J. M. Gibbons proposed the toast "The Mayor and Corporation of Sunderland and other Governing Authorities."

The Mayor, in acknowledgment, spoke of the excellent work of the River Wear Commissioners and Mr. Jenneson Taylor in improving the facilities of the port by securing 30 ft. of water at good tides and 27 ft. at ordinary tides, and by improving the dock accommodation. He considered that Sunderland had facilities that no other port on the north-east coast could offer. Their rates were certainly no higher than anywhere else, and they were going to make a big effort to pull them down.

Mr. W. T. Weir proposed the toast of "The National Federation and the Northern Counties Federation of Building Trade Employers." In doing so he said that in Mr. S. Smethurst and Mr. A. G. White they had two devoted members of the National Federation. The National Federation had done a great deal for the trade in the past in relieving it of worries that had been a burden to it. As the Federation had grown members of the trade had begun to see the benefit to be derived from unity.

Mr. S. Smethurst, President of the National Federation, responded. He paid a high tribute to the services rendered by Councillor Hope to the Federation, and said the National Federation had become a very important body. It represented in all the large centres of population nearly all the important builders, and it was performing very useful functions. As it grew in strength and influence it was being appreciated by all the outside authorities in a way it was not eight or ten years ago. The Government Departments now consulted them on all matters pertaining to their trade. When the Federation came into existence first they had to deal with working people, who were fairly well organised eight, ten, or fifteen years ago. They were so well organised, in fact, that they could impose their will on the building trade. The result was that very oppressive and restrictive conditions were brought into existence. The recognition by the trade unions that the building trade had become well organised had, however, made them more reasonable. In conclusion, he said that he had always found architects eminently fair, but a tradition had grown up that gave them an authority that he did not think impartial men would deem fair. What they wanted, and what he thought they would get by common consent, would be the recognition of what was just and fair, so that those inequalities would be done away with.

Mr. A. G. White, Secretary of the National Federation, proposed the toast of "The Sunderland and District Building Trades Association." He remarked that he wished to bear testimony to the excellent and efficient way in which the business of the Sunderland Association was carried on. He complimented the Association upon having a Secretary of the ability of Councillor Hope. He mentioned that the Sunderland Association was going to send Mr. J. W. White next year as President of the National Federation.

Mr. J. Morice Wright, President of the Association, responded.

The toast of "The Architects, Surveyors, and Engineers" was proposed by Mr. John W. White, who, while deploring the state of the building trade in Sunderland, remarked that it had to be said for Sunderland builders that they had shown themselves most enterprising, and captured work from competitors not only in all parts of the county of Durham, but in the adjoining county.

Messrs. W. Millburn and J. W. Moncur responded, and after the health of the Chairman had been honoured on the proposition of Mr. W. B. Cooper, the proceedings ended.

Bradford Master Builders' Association.

The annual meeting of this Association was held on the 20th inst. at the Talbot Hotel, Bradford. Mr. R. Raper, the retiring President, gave a brief *résumé* of the work accomplished by the Association and its kindred Federations during the past year, and congratulated the members on the healthy state of the Society and the finances. Mr. C. W. Booth, of Messrs. M. Booth & Sons, was elected President for the ensuing year, and Messrs. John Moulson (J. Moulson & Son, Ltd.) and W. Pickering Vice-Presidents. Sectional trade committees were also appointed, together with representatives on the local Conciliation Board for the building trades. Messrs. C. W. Booth, J. Moulson, and R. Raper were appointed to represent the Association on the Yorkshire Federation, and Messrs. Raper and Booth to attend the annual meetings of the National Federation to be held in London in January. The President entertained the members to tea, and was accorded a vote of thanks for his hospitality.

THE PLUMBERS' COMPANY.

THE Right Hon. Sir T. Vezey Strong, Lord Mayor, as Master, entertained the Freemen of the Plumbers' Company and other guests to dinner on Monday at the Mansion House. Among those present were Sir Thomas Barlow (President of the Royal College of Physicians), Sir Felix Schuster, Sir Samuel B. Provis, Sir Walter J. Howell, Sir Robert L. Morant, Sir James H. Harrison, Sir Ellis Cunliffe, Sir Swire Smith, Alderman Sir George Woodman, Sir Henry Tanner, Sir Shirley F. Murphy, Mr. Leonard Stokes (President of the Royal Institute of British Architects), Sir Richard Stapley, Sir Henry Craik, M.P., Mr. C. W. Bowerman, M.P., Dr. W. G. Willoughby (President of the Incorporated Society of Medical Officers of Health), Mr. Stanley Machin (Chairman of the London Chamber of Commerce), Mr. W. A. Appleton (Secretary of the Federation of Trade Unions), Mr. H. D. Searles-Wood, F.R.I.B.A., Mr. R. Cobay (Master of the Carpenters' Company), the Rev. H. R. Verry (Chaplain to the Company), and Mr. W. R. E. Coles (the Clerk).

The loyal toasts having been proposed by the Lord Mayor and honoured, Sir Thomas Barlow, Bart., K.C.V.O., proposed the toast of "The Lord Mayor, the Corporation, and the Sheriffs of the City of London," the Lord Mayor briefly responding.

The Master (the Lord Mayor) then proposed the toast of "Civic Institutions and their Relation to Commercial and Industrial Training." He said that the Plumbers' Company provided an important example of the practical adaptability of old institutions to modern needs. We had somewhat altered our adaptation to old principles. In the old days men of science concerned themselves principally with curative methods. They discovered evils and tried to remedy them. We adopted the more sagacious plan of preventing evils from arising. Take the want of sanitation which in former days caused small-pox. He was told there were to-day thousands of medical men who had never seen a case of small-pox, for the reason that improved sanitation had made small-pox a thing of the past. We revelled now in preventive medicine. Only seventy years ago a report was presented to an authority within that very area by a medical officer recommending open conduits as sewers on the ground that the solid matter would be dried by the sun and dispersed by the wind. The Plumbers' Company to-day suggested more excellent ways of dealing with such matter, and it was because of the great improvement in the method of their work that they sought the sympathy of all professional men engaged in public health. In 1891, the late King, addressing an international congress on health, referred to certain diseases which were deemed to be preventative, and made use of the phrase, "If preventible, why not prevented?" The plumbers' trade had been endeavouring, by supplying medical appliances to the approval of the medical profession, to show that certain diseases were preventable, and had by improved sanitation actually been prevented. This was the kind of work which the Plumbers' Company was trying to further, and to that end they had suggested that the Legislature should step in and give them the right of registration, so that some competent body should be empowered to say, "This man is competent, and therefore licensed," or "This man is incompetent, and is therefore rejected." They asked those who occupied supervising positions—architects, engineers, water engineers, and so on—to employ only efficient workmen, and the readiest means of marking the efficient from the inefficient was by satisfying a competent tribunal of fitness. The civic institutions were charged with great and growing responsibilities in connexion with the education of the children of the nation and the training of the future generations. The requirements of modern times were the things which made for training better craftsmen and better citizens, and it was the creation and maintenance of these two classes of complementary workers which were the objects of the Guild. The fuller co-operation of all in the training of the coming generation of our commercial and industrial workers was required.

Sir Swire Smith referred to the necessity for thoroughness of training instead of the smattering of everything that was now given to the youth of the nation.

Mr. Appleton, the Secretary of the Federation of Trade Unions, spoke of the wastefulness of the modern system of education. The children of this country should be given a high system of education; a third of the money spent by the nation on elementary education was wasted. The trade unions resented this waste of public money and of the youthful intelligence of the country on this mere payment for cramming. The country must be thorough in its methods, and there must be a return to the old apprenticeship days.

Sir Robert Morant also spoke, and the proceedings terminated shortly afterwards.

THE LONDON COUNTY COUNCIL.

THE last meeting of the London County Council before the Christmas recess was held at the County Hall, Spring-gardens, S.W., on Tuesday. Mr. Whitaker Thompson, the Chairman, presided.

THE WORKS DEPARTMENT.—The General Purposes Committee reported as follows:—

"The Council on March 9, 1909, referred it to us to arrange for the disposal of plant, machinery, and other articles belonging to the Works Department, and to take any steps necessary to effect the discontinuance of the Department. Under this reference we have arranged for the disposal of all plant, stores, etc., with the exception of certain small items . . We have had before us the final account of the Department for the nine months ended December 31, 1909, this date having been taken as the date when the offices of the Department were finally closed down and all operations ceased. The deficiency shown by the account is 16,231*l.*, which, added to the deficiency of 11,950*l.* written off in the account of the year 1908-9, represents a total loss of 28,181*l.* up to December 31, 1909, due to the closing of the Department. It comprises (i.) loss, commission and expenses in connexion with sales, 11,959*l.* (the actual loss on realisation of the plant and stores, viz., 9,393*l.*, works out at about 17½ per cent. upon the value of the same, which may be taken approximately at 53,940*l.*); (ii.) depreciation of plant and machinery not met by the charges made in respect thereof to the works carried out, 1,862*l.*; and (iii.) the balances on general and establishment charges accounts, 14,360*l.* The latter might be regarded as expenditure necessarily incurred during the closing stages of the Department. The total capital expenditure up to December 31, 1909, amounted to 112,728*l.* 5s. 5d., and up to that date sums amounting to 27,910*l.* 17s. had been provided for the redemption of debt by means of sums charged to the cost accounts of the various works executed during the period of existence of the Department."

Mr. W. C. Johnson expressed the view that the extinction of the Works Department had resulted in a far greater loss than 28,000*l.*

Mr. Salmon stated that the figures which appeared in the report were correct. It had been proved that work could not be done as cheaply by the Works Department as by contractors.

Sir John Benn said that his prophecy that it would cost between 30,000*l.* and 40,000*l.* to extinguish the Works Department had not been falsified. Further, there was the fact that the Department had acted as a wholesome check on those contractors who desired to serve London without competition, except such as might be arranged among themselves, and from that point of view the Council had lost thousands of pounds.

Mr. Dove expressed indignation that the trade to which he had the honour to belong should be accused of conspiring to rob the Council. The charge had been made before by Sir John Benn, but he had never brought up any evidence in support of it.

Sir John Benn denied that he had accused contractors of conspiracy.

Mr. Lansbury stated that certain works were being carried out by contractors without a schedule of prices having been previously arranged.

Sir John McDougall said that it was undoubtedly true that there were no schedule prices for a considerable number of items. The contractor filled in what he considered to be a fair price.

Mr. Lorden said it was impossible to make a schedule to cover the whole of the works.

After further discussion the Committee's report was adopted.

DISTRICT SURVEYORS' FEES.—The Education Committee reported as follows:—

"On November 15 and 16, 1910, we reported that we had authorised payment of the outstanding accounts for district surveyors' fees in cases where the expenditure could be met out of the sums provided in the annual votes. It is now necessary to consider as to the payment of accounts where such provision has not been made. We are advised that several surveyors are pressing for the payment of their accounts, and in some cases threatening to renew legal proceedings. It is impossible to estimate closely the amount which will come into charge during the current financial year, but we are of opinion that sanction should be at once obtained to expenditure of 500*l.*"

The Council approved the expenditure of this sum.

NEW SCHOOL, ETC.—The Education Committee recommended, and it was agreed:—

"That approval be given in principle to the transfer of the County Secondary School, Cassland-road, South Hackney, to a new school to be erected on a site in the neighbourhood of Clapton, and on the completion of such new school, to the reversion, for elementary school purposes, of the premises now occupied by the Secondary School.

"That the supplemental estimate of expenditure on capital account of 1,709*l.*, submitted by the Finance Committee in respect of the revision of the accommodation for giving instruction in science and art to be provided at the Sherington-road Central School be sanctioned."

SELECTED LIST OF CONTRACTORS.—On the recommendation of the Education Committee the following were added to the list of contractors selected to tender for work at Council schools:—

W. E. Blake, Plymouth, for new schools, enlargements, and structural alterations exceeding 2,000*l.* in value.

J. Lenn & Co., 289, High-street, Camden Town, N.W., for structural alterations, repairs to buildings, painting, and cleaning, not exceeding 2,000*l.* in value.

A. H. Fryd, 1, Southchurch-road, Southend-on-Sea, and B. Jewell, 52, Dresden-road, Hornsey-lane, N., for small cleaning and painting work contracts for one year on probation.

G. Wright, Ltd., 155, Queen Victoria-street, E.C., for providing and erecting iron staircases.

Buffalo Forge Company, Ltd., Caxton House, Westminster, S.W., for heating apparatus.

G. Forrest & Son, Nevill's-court, Fetter-lane, E.C., for providing and fixing gas services, fittings, etc.

EXTENSION OF THE MALL TO CHARING CROSS.—On November 15 the Council passed the following resolution:—

"That, in view of the improved traffic facilities which the new road through St. James's Park will give London, this

Council do proceed with the consideration of the necessary steps for opening up the access to Charing Cross; and that it be referred to the Improvements Committee to bring up a report as early as possible on the whole subject, with the necessary recommendations."

Reporting on this the Improvements Committee stated that they had considered alternative schemes for the completion of the improvement on the basis that a minimum width of 86 ft. be adopted for the road. The net cost is estimated at 112,200*l.* and 146,900*l.* respectively, the latter scheme providing for the dealing with a larger area of property than the former. These schemes were submitted to the Office of Works and the Westminster City Council with an intimation that the Committee were prepared to advise the Council to proceed with the matter, provided that the Government and the City Council each agreed to contribute one-third of the cost. A reply was received from the former stating that the First Commissioner adheres to the policy of his three immediate predecessors, and is wholly unable to advise the Government to bear any further cost in respect of the road outside the Government's jurisdiction; and suggesting, without undertaking any responsibility, that the larger is far superior to the smaller scheme. The Committee found no evidence to support the view put forward in this letter, but, on the contrary, the facts mentioned above made it clear that the Government contemplated completing the improvement. The Improvements Committee of the City Council are recommending a contribution of one-third, not exceeding 50,000*l.*, of the net cost of the larger scheme. The adoption of this scheme would afford opportunities for securing that the architectural treatment of the buildings on the surplus land shall harmonise with that of the Government buildings already erected. The Committee recommended that the Council is not prepared to carry out the extension of the wall to Charing Cross unless the First Commissioner of H.M. Works, etc., agrees to advise the Government to contribute one-third of the net cost.

After a long discussion a resolution was passed, on the motion of Mr. Hayes Fisher, seconded by Sir J. Benn, to the effect that His Majesty's Government should be invited to appoint three members to meet an equal number of representatives of the County Council and also of the Westminster City Council.

ALTERATIONS TO THEATRES, ETC.—The Theatres and Music Halls Committee reported that they had approved the following:—

Central Hall, 43, High-street, Peckham—provision of sanitary accommodation and widening of an exitway.

Central Hall Picture Palace, Upper Tooting-road and Fircroft-road—deviations from the approved drawings.

Dulwich Public Baths, Laurie-grove, New Cross—sanitary accommodation.

Hotel Great Central, Marylebone-road—secondary system of lighting.

Streatham Empire Picture Palace, 225, Streatham High-road—deviations from approved drawings.

Wandsworth Central Skating Rink, Easthill, Wandsworth—erection of shops, a club-room, offices, etc., adjoining one of the exitways.

The Committee recommended and it was agreed that the following be approved:—

Drawings and a specification, submitted by Mr. F. S. Swales, of alterations proposed to be made to premises at the junction of Merton-road and Standen-road, Southfields, in order to convert them into a cinematograph hall.

Drawings, submitted by Mr J. S. Alder, of St. John's Mission Hall, proposed to be erected in North End-road, Walham Green.

A drawing, submitted by Mr. F. T. Verity, showing a proposal to construct a cinematograph chamber in the dress circle at the Scala Theatre, Charlotte-street.

ARCHITECT'S DEPARTMENT.—On the recommendation of the Establishments Committee it was agreed:—

That Mr. H. F. T. Cooper, assistant in the first class in the Architect's Department, be promoted to be a senior assistant.

That Mr. A. J. Peyto and Mr. J. S. Brooks, assistants in the second class, be promoted to the first class.

That Mr. Edward James Fairchild, Mr. George Thow Smith, and Mr. James Carey be appointed, subject to their passing satisfactorily the usual medical examination, in the Architect's Department.

INDICATION OF HOUSES OF HISTORICAL INTEREST.—The Local Government, Records, and Museums Committee stated that they have for some time past held the opinion that the design of the memorial tablets affixed by the Council to houses of historical interest in London might be improved. They had had before them alternative designs, and, after careful consideration, had approved three new designs in (1) bronze, (2) lead, and (3) Hopton Wood stone, with a view to one of the three being used as seems appropriate to the particular circumstances of each case.

LONDON COUNTY COUNCIL (GENERAL POWERS) BILL, 1911.—The Parliamentary Committee reported that in accordance with the Council's instructions they had prepared the above Bill to be introduced into Parliament in the session of 1911. Amongst other things, power is sought to enable the Council to develop and use or let on lease for the purpose of development on the lines of a garden suburb any portion or portions of the White Hart-lane Estate. Provisions are included exempting from any local by-laws or provisions in force in the area the buildings and roads on the part of the estate which may be developed as a garden suburb. Power is also included to enable the Council to provide gardens, recreation-grounds, buildings and facilities and apparatus for games for the use of the inhabitants of any dwellings on the estate, and to make by-laws for the regulation thereof, and to make charges for the use thereof.

The Bill also seeks to amend the Building Acts so as to enable the Council to control and regulate any movable erection extending beyond the general line of buildings in any street to which the consent of the Council would be required in pursuance of sect. 22 of the Act of 1894 if such erection had been fixed and not movable; or (subject to certain exceptions and limitations) any pulley, crane, loading flap, awning, screen, blind, lamp, daylight reflector or prismatic light, clock, sign or device in the nature of an advertisement or announcement or direction, case, stall, or other fittings for the display of articles extending beyond the general line, or overhanging the public way. With the approval of the Building Acts Committee it had been provided in the Bill that the powers in question shall not operate in the case of existing structures and things until the expiration of a period of three years from the passing of the Act.

Powers are sought to prohibit the construction under the carriageway of any street in the administrative county of London of any subway or passage without the consent of the Council; to extend the provisions of the Metropolis Management Amendment Act, 1890, so as to enable metropolitan borough councils to repair, at the cost of owners of property abutting thereon, footways in roads which have not become repairable as new streets by the borough councils; to provide that where any damage to property of local authorities within the meaning of sect. 207 of the Metropolis Management Act, 1855, is caused by any vehicle, the owner of such vehicle or the employer of the driver or person in charge of such vehicle shall be liable as well as the driver to pay the amount of damage done.

LONDON COUNCILS.

Barnes.—10,000*l.* is to be spent on extensions of the generating plant. The following plans have been passed:—Mr. G. W. Hartnell, eight houses, St. Leonard's-road; Mr. T. G. Jackson, alterations and additions, "Hillfield," Vicarage-road; Mr. J. H. Tyars, six houses, Coval-road; Messrs. Watney, Combe, Reid, & Co., additions, The Brewery.

Barnet.—The Rural District Council has approved plans for Baptist Church schools to be erected at the junction of Furze-hill and Shenley-road.

Bermondsey.—Difficulty has been experienced in getting supplies of pitchings to pave streets. Messrs. Lamb, Son, & Prance, solicitors, 17, Ironmonger-lane, E.C., have written to the Council stating that their clients, the trustees under the will of the late Mr. W. R. Sutton, are about to apply to the Court (under the direction of which the estate is being administered) for liberty to acquire sites for the erection of model dwellings for the poor, under the trusts of the testator's will, in eight provincial cities and in two districts in London, and to expend thereon, and on the erection of the dwellings, a sum of about 500,000*l.* Bermondsey and Deptford are the two boroughs selected by the trustees in London, and in support of the application the trustees will have to file general evidence showing the need of the proposed dwellings. It is purposed to obtain from the Town Clerk of each city and borough a letter stating where the accommodation is required, and whether block buildings or cottages on the principle of a garden suburb are more desirable. The trustees are desirous of making the application to the Court at the earliest possible moment. The Public Health Committee of the Council has had the matter under consideration, and a letter has been sent to the solicitors stating that there is a large demand for dwellings at rents within reach of poorer people. There is a large and deserving class of poor resident in the borough who have the greatest difficulty in obtaining housing accommodation at rents within their means, and the Committee suggest that the rents should be about 2*s.* per room per week. There are a number of available sites suitable for the erection either of cottages or model dwellings.

Croydon.—Messrs. James Smith & Sons, Ltd., Junction Works, South Norwood, have had their tender accepted at 5,252*l.* for the enlargement of the Central Polytechnic, and the erection of a Higher Elementary school for boys. The following plans have been passed by the County Council:—Mr. C. H. Ridge, eight houses, Greenside-road; Mr. D. Weightman, six houses, Nutfield-road; Mr. C. S. Banks, ten houses, Melrose-avenue; Mr. J. B. Hemmings, five houses, Sundridge-road; Mr. E. G. Cole, parochial hall, Handcroft-road; Mr. P. Lellasseur, distillery, etc., Mitcham-road; Mr. E. F. Morgan, offices, Factory-lane; Messrs. Creed & Co., testing-room, store, lavatories, etc., Selsdon-road; Mr. G. E. Burgess, hall, Whitgift-street. The Rural District Council has accepted the following tenders for making-up roads:—Messrs. Free & Sons, Maidenhead, part of Purley Oaks-road, 891*l.*; Mr. W. Hall, Thornton Heath, Brambledown-road, 867*l.*, Essenden-road, 264*l.*; Messrs. E. & E. Iles, Wimbledon, footpaths of Mayfield-road, 353*l.* The Surveyor has been directed to formulate a scheme for the application of the Town Planning Act in the parish of Morden, in view of the construction of the proposed new railway through that parish. It having been reported that the British Land Company are considering the purchase of the Beddington Downs Estate, the Surveyor was directed to confer with the company as to the laying-out of same, the class of property to be erected, etc.

Hackney.—The proposed branch library scheme has been again shelved. The difficulty this time is in regard to the maintenance of the buildings, which is put down at 4,700*l.* per annum. The Council are unable under the Act to levy more than a penny rate, and there is at present no guarantee that this rate would always produce 4,700*l.* per annum.

Hemel Hempstead.—Mr. S. C. Smith has had plans passed for four houses in Chapel-street.

Hornsey.—Plans have been passed as follows:—Messrs. W. Luck & Sons, East Finchley, alterations and additions, Coldfall Villa, Fortis Green, Muswell Hill; Mr. H. E. Fedrick, Cholmeley Park, Highgate, four houses, Stanhope-gardens, Highgate.

Ilford.—2,100*l.* is to be spent in the construction of a concrete culvert at South Park lake. The following plans have been passed:—Mr. Leonard Randall, for Mr. S. A. McLean, four houses, Lansdowne-road; Mr. A. T. Haines, for Mr. C. J. Rooke, four houses, Bradford-road; Mr. G. Farrow, extensions, Grange-road Hall, Grange-road; Messrs. Rawlings, Culver, & Co., eleven houses, Charlbury-gardens, three houses, Cardigan-gardens, and two houses, Goodmayes-lane; Mr. H. Samburgh, five houses, Cowley-road; Messrs. W. P. Griggs & Co., seventeen houses, Lennox-gardens; Mr. W. W. Bull, four houses, Valentines-road. Mr. F. E. Clark has lodged plans for seven houses in Balfour-road.

Surbiton.—The Local Government Board has, as a result of a recent inquiry, agreed to authorise a loan of 10,000*l.* on account for sewerage and sewage disposal. The Board state that they are advised that the proposals of the Council are generally satisfactory. It was mentioned that the Board could not give their formal consent to the whole of the loan until the amount required was known. The present estimate is 63,500*l.*

PROJECTED NEW BUILDINGS IN THE PROVINCES.*

ABERBARGOED. — Public hall; Mr. W. Edwards, Aberbargoed.

Aberdeen.—Church, Thistle-street; Plymouth Brethren, Aberdeen.

Aberystwyth.—Proposed isolation hospital; Mr. R. Jones, Surveyor, Town Council.

Abram.—Proposed church; Vicar, Parish Church, Abram.

Anstruther.—Golf clubhouse (2,000*l.*); Mr. C. F. Anderson, architect, 141, South-street, St. Andrews.

Bandon Hill.—School (300 places); Mr. Ramsay Nares, Secretary, Education Committee, Surrey County Council, Kingston.

Bank Head.—Workmen's club; Mr. E. Price, builder, Houghton-le-Spring.

Barrow.—Fire-station (7,500*l.*); Mr. A. Race, Surveyor, Barrow-in-Furness Town Council.

Basingstoke. — Drill hall: O.C. Royal Horse Artillery Territorials, Basingstoke.

Bath.—Additions, refuse destructor; City Surveyor, Guildhall, Bath.

Birkenhead.—School (1,000 places); Mr. R. T. Jones, Secretary, Education Committee, Town Council.

Birmingham. — Cottage baths, Brearley-street (2,150*l.*), also in Bacchus-road (2,400*l.*); Mr. H. E. Stilgoe, Surveyor, Birmingham Town Council. Infants' school in connexion with Sladefield-road School (5,000*l.*); Mr. J. A. Palmers, Secretary, Education Committee, Birmingham Town Council.

Blowick.—Buildings (5,000*l.*); Vicar, All Saints Church.

Bolton.—Presbyterian Church, St. George's-road; Rev. H. Martin, St. Andrew's Church, Bolton.

Bournemouth.—The following plans have been passed:—Four pairs of houses, Cardigan and Trafalgar roads, for Mr. E. W. Welstead; five houses, Abinger-road, for Mr. E. J. Scott; three houses, Leamington-road, for Messrs. J. & A. Steane.

Bradford.—Proposed building Lister Hills-road, for Stephenson Bros., Ltd. Factory, Thornbury-road; Mr. S. Spencer, architect, Old Bank Chambers, Great Horton.

Broompark.—School; Mr. W. Rushworth, architect, Shire Hall, Durham. Mr. W. Coates, builder, Durham.

Broughty.—Manse (1,000*l.*); Pastor, Beach Parish Church, Broughty.

Bucknall. — Additions and alterations, hospital (9,700*l.*); Stoke-on-Trent Joint Hospital Board.

Bude.—Restaurant; Mr. E. Wise, architect, Launceston.

Bulford (Salisbury). — Barracks (1,800*l.*); Messrs. Chivers, builders, Devizes, Wilts.

Chatham.—The following plans have been passed:—Four houses, East-hill, Luton, for Mr. W. Davis; rebuilding Gaiety Theatre for Captain Davis; twelve cottages, Wyles-road, for Mr. A. G. Webb.

Chippenham.—Market hall rear of Town Hall; Mr. A. E. Adams, Surveyor, Urban District Council.

Crail.—Mansion (3,000*l.*): Messrs. Thoms & Wilkie, architects, 46, Reform-street, Dundee.

Darlington.—Church, Vicarage-road; Vicar, St. Columbas.

Devonport. — Picture palace; Mr. C. Cheverton, architect, Chapel-street, Devonport.

Dewsbury.—Eighteen houses, Huddersfield-

Doncaster. — Sorting office, Westgate; Messrs. Dennis Gill & Sons, builders, Doncaster.

Edinburgh.—Premises for Messrs. McFarland & Co. (2,000*l.*); Mr. J. G. Adams, architect, 34, St. Andrew-square, Edinburgh.

road; Mr. J. Crossley, builder, Dewsbury.

Epsom.—Three conveniences and caretaker's lodge, Alexander-road. Recreation ground (800*l.*); Mr. E. R. Capon, Surveyor, Epsom Urban District Council.

Erdington.—Hotel, High-street; Messrs. Geo. Webb & Son, builders, Soho-hill, Birmingham. Wesleyan Church: Messrs. Holyoak & Sons, builders, High-street, Erdington.

Falmouth.—Picture palace, High-street; Mr. Lark, Falmouth.

Farningham.—School; Governors, Home for Little Boys, Farningham.

Foleshill.—Children's home, Lytballs-lane (756*l.*); Mr. H. Forknell, builder, Longford, Warwick.

Folkestone.—The following plans have been passed:—Eleven houses, Shorncliffe Station-road, for Messrs. Hudson Bros.; Mr. J. Trollope, surveyor. Additions, Out Patients' Department, Royal Victoria Hospital, for the Governors. Mr. H. J. Moody, architect, Mr. J. G. Parsons, builder.

Glasgow.—Works (3,000*l.*); Messrs. J. Templeton & Co., West-street, Glasgow.

Grays (Essex).—Headquarters, Cromwell-road (2,500*l.*), for the 3rd Essex Battery, R.F.A. and the Grays Troop of the Essex Yeomanry.

Greenock.—Conversion of premises into bank, West Blackhall street, for the British Linen Bank.

Grimsby.—Mission Church, Haycroft-road; Vicar of Grimsby.

High Spen.—Additions, school (3,000*l.*); Mr. W. Rushworth, architect, Shire Hall, Durham.

Hooley Hill.—Church; Vicar, St. Stephen's, Hooley Hill.

Kettering.—Church; Rev. W. H. Higgins, Carey Memorial Baptist Church, Kettering.

Kilmarnock.—Premises; Messrs. Glenfield & Kennedy, engineers, Kilmarnock. Factory (4,000*l.*); Saxone Shoe Company, Kilmarnock.

Laneshawbridge.—School; Secretary, Colne Education Committee.

Leatherhead.—School (500 places); Mr. Ramsay Nares, Secretary, Education Committee, Surrey County Council, Kingston.

Lichfield.—Villa residences, Birmingham-road; Messrs. J. Thorniloe & Sons, builders, St. John-street, Lichfield.

Liverpool.—Offices, etc., Bridewell Rose-hill (3,500*l.*); Mr. T. Shelmerdine, Surveyor, Liverpool Town Council.

Livesay.—Mill for Messrs. H. Eastwood & Co., Ltd.

Maidstone.—Plans have been passed as follows:—Garage, St. Michael's-road, for Mr. L. Green; three houses, King Edward-road, for Messrs. Clarke & Epps.

Mansfield.—School (600 places), junction of Moor-street and Moor-lane; Mr. J. H. White, Secretary, Education Committee, Mansfield Town Council.

Marsden.—Branch store and about fifty houses; Co-operative Society.

Northallerton.—Addition, auction mart, for Mr. J. Todd.

Northover (Glastonbury). — Extension of factory for Messrs. Clark, Son, & Morland, Glastonbury.

Nottingham. — Public baths, Meadows Cricket Ground; Mr. F. C. Cook, Surveyor, Town Council.

Oxhill.—School (4,000*l.*); Mr. W. Rushworth, architect, Shire Hall, Durham.

Pickering.—Proposed town hall; Surveyor, Urban District Council.

Pitlochry.—Mansion, Cluniemore (4,000*l.*); Mr. W. R. Davidson, architect, 8, New-square, Lincoln's-inn, W.C.

Poole.—School, South-road (7,300*l.*); Mr. H. W. King, builder, Bournemouth.

Queenstown.—Artisans' dwellings; Messrs. Donnelly & Moore, architects, Nassau-street, Dublin.

Richmond-on-Thames. — Public hall; Trustees, Unitarian Church, Ormond-road, Richmond. Receiving home for children, rear of Guardians' offices (2,500*l.*); Architect, care of Mr. P. Umney, Clerk, Richmond Board of Guardians.

Seaforth (Lancs).—Alterations and additions, branch library (700*l.*); Mr. F. S. Yates, Surveyor, Waterloo-with-Seaforth Urban District Council.

Shanklin.—Chapel; Churchwardens, St. Saviour's.

Sheffield.—Mission Church; Vicar, St. Mary's Church, Walkley, Sheffield. Church; Vicar, St. Timothy's Church. The following plans have been passed:—Six houses, Mitchell and Bromwich roads, for Miss A. Hunt; twelve houses, Nidd and Horrogate roads, for Mr. G. D. Wright; additions and alterations, Attercliffe Church School, Leeds-road, for the Rev. J. R. Lee Nicholls; eight houses, Cheadle-street, for Mr. T. H. Johnson; alterations, Paragon Hotel, Thomas-street and Button-lane, for Messrs. H. Tomlinson, Ltd.; eleven houses, Catch Bar and Lepping lanes, for Mr. J. H. S. Randall; alterations, premises, Clarkehouse-road, for the Sheffield Corporation Education Committee; alterations, premises, Leeds-road, for Messrs. Brown Bayley's Steel Works, Ltd.; alterations, premises, Denby and Unstone streets, for the Society for the Prevention of Cruelty to Animals; five houses, Willoughby-street and Lauder-street, for Mr. J. Lidster; additions, premises, Fitzalam-square, for the Sheffield and District Cinematograph Theatres, Ltd.; alterations and additions, premises, Zion-lane, for the Trustees, Zion Congregational Chapel; additions, premises, Club Mill-lane, for the Sheffield Corporation; two houses and bank, Fulwood-road, for the London, City, and Midland Bank, Ltd.; four houses, Springvale-road, for Mr. T. Church; alterations, premises, Pinstone-street, for the Sheffield and Hallamshire Property Company, Ltd.; cinematograph theatre, Infirmary and Jobson roads, for Mr. C. A. Watts.

Shieldfield.—Parish buildings, St. Jude's; Mr. A. B. Plummer, architect, 13, Grey-street, Newcastle-on-Tyne.

Shrewsbury.—Adaptation of Besford House, Belle Vue, for central receiving home for children (2,000*l.*); Mr. E. R. Everest, Clerk, Atcham Board of Guardians.

Southampton.—The following plans have been passed:—Four houses, Newlands and Lumsden avenues, for Messrs. Jurd, Sanders, & Christie; ten houses, St. James's-road, for Mr. J. V. Blake; addition, factory, Millbrook-road, for Mr. F. H. Jung; additions, laundry, Priory-road, for A. W. Bricknell.

Swindon.—Primitive Methodist Church; Trustees, R.P.M. Church, Regent-street, Swindon.

Upper Mitcham.—Boys' school (350 places); conversion of existing premises into school for girls (650 places), also cookery and laundry-room; Mr. Ramsay Nares, Secretary, Education Committee, Surrey County Council, Kingston.

Valentia (Kerry).—Thirteen cottages (138*l.* each); Mr. W. O'Sullivan, builder, Valentia.

West Southbourne.—Church; Vicar, All Saints'.

Wigton.—Proposed additions to parish church; the Vicar.

Worksop.—Additions, Victoria Hospital (1,000*l.*); Mr. A. H. Richardson, architect, Worksop.

Yarmouth.—The following plans have been passed:—Five houses, High-road, Southtown, for Mr. A. J. Newby; additions, Southtown Laundry, for Mr. C. A. Campling.

*See also our list of Competitions, Contracts, etc., on another page.

COURT OF COMMON COUNCIL.

A MEETING of the Court of Common Council was held on Thursday last week at the Guildhall. The Lord Mayor presided.

Renewal of Contracts.—On the recommendation of the Streets Committee, it was agreed that the contract with the Limmer Asphalte Paving Company, Ltd., for maintaining the footways of Bishopsgate-street Without, be extended for one year at the same price, and that the contract with Messrs. John Mowlem & Co., Ltd., for the reparation of sewers, be extended until March 31, 1911, at amended schedule prices, involving an increased expenditure of about 100*l.*

Street Widenings.—The Streets Committee submitted arrangements for acquiring the following:—The leasehold and trade interests of Messrs. Agosti & Grassi in No. 121, Bishopsgate-street Without, for the sum of 800*l.*: the freehold interest of the Great Eastern Railway Company in No. 137, Bishopsgate-street Without, and the company's right over Gun-yard and Newnham's-place, and to the payment of the sum of 4,500*l.*; the freehold interest of Mrs. B. E. Robinson in No. 77, Fleet-street, for 10,345*l.*; the freehold interest of Mrs. E. P. Milsted in No. 78, Fleet-street, for 13,000*l.*; the freehold interest in Nos. 6 and 7, Kinghorn-street, for the sum of 2,800*l.*—The Court approved.

Cold Storage Accommodation at the Central Markets.—The Central Markets Committee, reporting on the question of cold storage accommodation at the central markets, asked for authority to consider the question generally, and, if deemed desirable, to submit plans and estimates for the provision by the Corporation of cold storage.—This was agreed to.

OBITUARY.

Mr. C. H. Fowler.

We regret to announce, the death, on December 14, at his residence, The College, Durham, of Mr. Charles Hodgson Fowler, M.A., F.S.A., aged seventy years. Mr. Fowler was the son of the Rev. R. Fowler, Vicar of Rolleston, Notts. He was a pupil of Sir G. G. Scott, with whom in 1874-6 he carried out some restoration of Durham Cathedral—the rearrangement of the stalls and organ being by Mr. Fowler. He was elected in 1863 an Associate, and in 1870 a Fellow, of the Royal Institute of British Architects. He was appointed architect to Rochester Cathedral, *vice* J. L. Pearson, in 1898; in January, 1900, he succeeded Sir Arthur Blomfield as architect to Lincoln Cathedral; he was, during a long period, Diocesan Architect to Durham, and formerly to York. Mr. Fowler designed the restoration, 1895, of the Chapter House, Durham, at a cost of 5,600*l.*, the cenotaph in memory of Bishop Lightfoot in the cathedral, and the reredos, fittings, and stained glass in the chapel of the Palace, Bishop Auckland; he was architect for the reinstatement, 1901-3, of Selby Abbey tower, and the recent building of the central tower, Rochester Cathedral. He made

the designs for many churches, screens, carved work, etc. Of the churches, we may mention those at Bournemouth (St. Ambrose) and Notting Hill (St. Columb), Bishopthorpe, Malton, Marsden (English XIVth-century style, for 800 seats, to cost when completed some 18,000*l.*), Cudworth, Halifax (St. Hilda's), Crossland Moor, Cornholme, Skourton, and Hessay, with the chapel of the Woodard Girls' School, Harrogate, Yorks; St. Faith's, with reredos, and All Saints', Lincoln, and at Ashby, Woodhall Spa, Revesby, North Holland, and Grimsby (St. Aidan), Lincs; reconstruction of Holy Trinity, Darlington; buildings at Bede College, Durham, and St. Aidan Church, Sunderland; Thurlstone, Co. Derby; St. Alban, Rotford; St. Saviour, Ravensthorpe; Penley, Staffs; Cheltenham Training College chapel (with Mr. H. W. Chatters); choir stalls, St. Andrew's Cathedral, Inverness (with Mr. Alexr. Ross); altar tomb of Dean Hole, Rochester Cathedral; extension of Brighouse Parish Church, St. Mary's, Nottingham, St. Nicholas's, Lincoln, and St. Mary's, Oldham; reredoses at Sharrow, near Sheffield, Thirsk, Hovingham, St. Cuthbert's, Durham, and Oswestry; and the towers of Sheldon, Co. Durham, St. Oswald, Flamborough, and Barnoldby-le-Beck, Yorks; the rebuilding, in progress, of the parish church, Heckmondwike; and, seven years ago, rebuilding after a fire at Bolton Hall, Wensleydale. Mr. Fowler was one of the Honorary Consulting Architects of the Incorporated Society for Promoting the Enlargement, Building, and Reparation of Churches and Chapels. He restored a great number of churches, including some in the East Riding for the late Sir Tatton Sykes. The most important are Holy Trinity (Norman), Micklegate, York (at an outlay exceeding 5,000*l.*), which in 1908 was converted into a priory; St. Mary, Thirsk, the "cathedral" of Cleveland archdeaconry; Rolleston, Notts; Wolsingham; Austerfield, W.R. (XIIth century); St. Peter (Saxon), Barton-on-Humber; Greetwell (Saxon); Witton-le-Wear (XIIth century); Bakewell, with reconstruction of the west end; Scawton, Linthwaite, Langtoft, with new nave and aisles, and reinstatement of the Norman tower; Fridaythorpe, Bawtry, Hampsthwaite, St. Leonard's, New Malton (with Mr. C. H. Channon); Stillingfleet, Hunmanby, Crathorne, Wetwang, near Driffield, and Wensley-in-Leyburn, Yorks; Broadwas, Worcs; Rolleston, Collingham, Flintham, and Saxilby, Notts; Kirton, Misson, Northorpe, Surfleet, Grayingham, Greetham, Bowley, Sturton-le-Steeple, and Cranwell, Lincs; St. Michael (Norman), Fobbing, Essex; High Hoyland; Kirkburton (an extensive scheme); Winterton, All Saints'; Wanlip, near Leicester; Moreton Saye; All Saints', Sutton-on-Trent; Castle Bytham; Dalton-le-Dale, Sunderland; Silk Willoughby; Brampton, Brierlow, at a cost of 7,000*l.*, and, one of his latest works, St. Cuthbert, York.

Mr. R. R. Mawson.

Mr. Robert R. Mawson, proprietor of the Lakeland Nurseries and brother to Mr. Thomas H. Mawson, died at the age of forty-six at his residence at Windermere on Thursday last week, after an illness extending over a year. The deceased was the second son of the late Mr. John William Mawson, seed merchant and florist, of Ingleton, Yorkshire, whose widow later removed to London, where each of the three brothers received a thorough training with some of the then best-known nurserymen and landscape gardeners, the eldest brother having for two years previously studied architecture. Returning north twenty-six years ago, they began business at Windermere, and five years later the two younger brothers, Isaac and Robert, became sole owners of the nursery business which they had established. The younger brother dying nine years ago, the business came into Mr. R. Mawson's hands. Mr. Robert Mawson, who made no profession of any special knowledge as a garden architect, possessed a unique acquaintance, not only with the horticultural part of a garden, but with every phase of garden construction. Not only did he carry out much of the work designed by his brother, but he built up an extensive connexion amongst architects generally, for whom he carried out numerous important works. A large number of mourners paid their last respects to his memory at the Bowness Cemetery, Windermere, on Saturday last week. We hear that the business will be continued by the executors under the management of his two nephews, who have been closely associated with him for many years past. Mr. Mawson leaves a widow, a son, and two daughters.

Mr. Richard Silver.

We regret to announce the death, on December 7, in his ninety-fourth year, of ex-Alderman Richard Silver, J.P., of Maidenhead. Mr. Silver, who was a keen antiquarian, was the builder of many churches, in which he took great interest, as he did in church restoration. He was for many years personally identified with the business his father founded at Tittle-row in 1818. His residence he named "Etruria," in consequence of Roman pottery and other curios being found on the site; many of these are now at the British Museum. Up to a short time ago he was the oldest member of the Maidenhead Board of Guardians, and he was a member of the Town Council for about forty years. He was Mayor of Maidenhead in 1872-3 and 1877-8, and Senior Justice of the Peace for the Borough, also on the Commission of Peace for the County of Berks. He was Chairman of the Water Company for a period of forty-two years, and was also one of the founders of the Horticultural Society. At the funeral, which took place at Maidenhead Cemetery, the Mayor and the Town Councillors and other officials attended.

APPLICATIONS UNDER LONDON BUILDING ACTS, 1894 to 1909.

THE following applications under the London Building Acts were considered on Tuesday at the meeting of the London County Council (the names of the applicants are given between parentheses):—

Lines of Frontage and Projections.

Brixton.—The erection of an iron and glass covered way in front of Nos. 199 to 203, Clapham-road, Brixton (Messrs. Meakin, Archer, & Stoneham).—Refused.

Hackney, Central.—The erection of buildings on the northern side of Church-road, Hackney, eastward of No. 2 (Mr. W. O. Brown).—Refused.

Hammersmith.—The erection of wooden bay windows and hoods to eleven houses on the western side of Sedgeford-road, Hammersmith, southward of Steventon-road, so far as relates to the erection at three of the houses of two-story bay windows with bargeboards and sham half-timber work in the gables, in lieu of one-story bay windows (Messrs. J. S. Quilter & Son for Messrs. J. Walker & Co.).—Consent.

Kensington, North.—A deviation from the plan approved for the erection of bay windows at Nos. 22 to 42 (even numbers only), inclusive, Highlever-road, Kensington, and of a projection at the site of No. 42, fronting on Kingsbridge-road, so far as relates to an alteration in the construction by the addition of small piers (Messrs. E. T. Daley & Son).—Consent.

Mile End.—The erection of an addition over the one-story shop in front of No. 35, Mile End-road, Mile End (Mr. C. Dunch for Mrs. M. Avila).—Refused.

St. George, Hanover-square.—Erection of a balcony in front of No. 15 Old Bond-street, Westminster (Mr. H. P. Adams).—Consent.

St. Pancras, North.—The erection of buildings upon the site of Nos. 185 to 205, Kentish Town-road, to abut upon Kentish Town-road, Prince of Wales-road, and Grafton-mews (Mr. S. G. Castleman for Sir H. Regnart, J.P.).—Refused.

St. Pancras, South.—That the application of Mr. E. H. Draper for an extension of the periods within which the erection of buildings on the southern side of Euston-road, St. Pancras, between Tonbridge-street and Mabledon-place, and the erection of a one-story building to abut upon Tonbridge-street, was required to be commenced and completed, be granted.—Consent.

Strand. — Erection of a projecting illuminated sign at Milford House, Milford-lane, Strand (Mr. W. K. McDermott for the Anglo Engraving Company, Ltd.).—Consent.

Wandsworth.—The erection of buildings on the north-western side of Balham High-road, Wandsworth, between Nos. 170 and 176 (Messrs. Gilbert & Constanduros).—Consent.

Width of Way.

Hoxton.—The erection of buildings upon the site of Nos. 155 and 157, Kingsland-road, Hoxton, at less than the prescribed distance from the centre of the roadway of Flemming-street (Messrs. Lovegrove & Papworth).—Refused.

Woolwich.—Erection of a one story building at the rear of No. 152, Eltham High-street, at less than the prescribed distance from the centre of the roadway of Elm-terrace (Mr. G. T. Ward).—Consent.

Width of Way and Frontage.

Fulham.—That the Council, on the application of Messrs. Tuckett & Son, do consent to the retention of an advertisement hoarding on the western side of Parson's Green-lane, Fulham, northward of Pursers-cross-road.—Consent.

Widening of Streets and Width of Way.

Walworth.—The erection of buildings next to Elsted-street, Tisdall-place, and Hearns-buildings, Walworth, and the erection of one of such buildings on the south-western side of Tisdale-place, with an irregular open space about such building (Mr. R. J. Dickins).—Consent.

Space at Rear.

Lambeth, North.—A modification of the provisions of that section with regard to open spaces about buildings, so far as relates to No. 3, The Parade, Hamish-street, Lambeth, with an irregular open space at the rear (Mr. J. F. Parker for Mr. F. G. Smith).—Consent.

Wandsworth.—A modification of the provisions of that section with regard to open spaces about buildings, so far as relates to the proposed erection of No. 142, Streatham High-road, with an irregular open space at the rear (Mr. A. L. Guy).—Consent.

Working-class Dwellings.

Fulham.—That the Council do make an order disapproving plans submitted by Mr. W. E. Wallis on behalf of the Governors of the Peabody Donation Fund, of intended dwelling-houses to be inhabited by persons of the working class, and proposed to be erected upon a site on the southern side of Lille-road, Fulham.—Refused.

Lines of Frontage and Construction.

City of London.—The erection of an iron and glass shelter at the entrance to the District Railway Company's station, Cannon-street, City (Mr. H. W. Ford for the Metropolitan District Railway Company).—Consent.

Width of Way and Construction.

Mile End.—The erection of a temporary iron shed in the yard of premises on the northern side of Sceptre-street, Mile End (the East Ferry-road Engineering Works Company, Ltd.).—Consent.

Width of Way, Line of Frontage, and Projection.

Holborn.—That the Council do consent to the application of Mr. C. Burton for permission to deviate from the plans approved for the erection of an iron and glass gangway at No. 14, Cross-street and No. 21, Hatton-yard, Holborn, over the public way of Hatton-yard, so far as relates to the glazing of the open spaces in the side enclosures of the gangway.—Consent.

Paddington, South.—The erection of a wood and iron building of a temporary character at the rear of No. 34, Bishop's-road, Paddington, next to Gloucester-terrace (Messrs. Humphreys, Ltd., for Mr. J. Munford).—Refused.

Formation of Streets.

Battersea.—That the Council do not consent to the application of Mr. A. Wellings for permission to alter the direction of a portion of a street leading eastward in continuation of Chatto-road, between Grandison-road and Alfriston-road, Clapham Common.—Refused.

Hampstead.—That an order be issued to Messrs. Worley & Turner refusing to sanction the formation or laying-out of a street for carriage traffic in connexion with the proposed erection of buildings upon a site on the north-eastern side of Haverstock-hill, Hampstead (Mr. J. J. Wheeler).—Refused.

Kensington, North.—A deviation from the plans sanctioned for the formation or laying-out of a new street for carriage traffic in continuation north-westward of St. Mark's-road, Kensington, so far as relates to an alteration in the levels (Messrs. P. & H. W. Currey).—Consent.

Lewisham.—That an order be issued to Mr. R. Stewart, refusing to sanction the formation or laying-out of a new street for carriage traffic out of the western side of Abbotshall-road, Lewisham (Mr. A. Cameron Corbett, M.P.).—Refused.

Paddington.—That, at the request of Mr. H. T. Steward, the Council do permit the retention of wooden fences or barriers across Biddulph-road and Ashworth-road, on the Paddington Estate, Sutherland-avenue, Paddington.—Consent.

Wandsworth.—That an order be issued to Mr. W. C. Poole, refusing to sanction the formation or laying-out of streets for carriage traffic on the Elmwood House Estate, Upper Tooting (Mr. H. R. Selley).—Refused.

Alteration of Buildings.

Deptford.—Alterations and the erection of an addition at the Cliftonville Laundry, Bolina-road, Deptford (Mr. L. S. Rogers for Messrs. R. H. & S. Rogers, Ltd.).—Refused.

Strand.—Alterations at No. 2, Boyle-street, Savile-row (Messrs. Kemp & How for Messrs. J. Lyle & Co., Ltd.).—Refused.

Wandsworth.—A modification of the provisions of sect. 41 of the 1894 Act, so far as relates to alterations and additions at Nos. 99 and 101, High-street, Putney (Mr. H. Tanner, jun., for Messrs. J. Lyons & Co.).—Consent.

Westminster.—The retention of an addition on the roof of No. 87, Victoria-street, Westminster (Mr. A. B. Burton for the 87, Victoria-street Syndicate, Ltd.).—Consent.

Cubical Extent.

Whitechapel.—The retention of Nos. 2 to 12, Chamber-street, Whitechapel, exceeding 250,000 cubic ft. in extent (Mr. H. Jones for the Great Eastern Railway Company).—Refused.

Uniting of Buildings.

Finsbury, East.—The further uniting of the premises of the Royal London Mutual Insurance Society, Ltd., at the corner of City-road and Finsbury-square, by means of enclosed gangways at the third and fourth floor levels (Messrs. John Belcher, R.A., & J. J. Joass).—Consent.

Hoxton.—The uniting of Nos. 43 and 45, Great Eastern-street, Hoxton, with No. 58, Curtain-road (Mr. W. Campbell Jones for the Rotax Motor and Cycle Company).—Consent.

St. George, Hanover-square.—The uniting of Nos. 8 and 9, South Molton-street, Westminster, by openings at the second and third floor levels (Messrs. Watson & Thorp for Messrs. Lieb & Steiner).—Consent.

Division Walls.

Paddington, South.—That the Council, on the application of Messrs. John Belcher, R.A., & J. J. Joass, do consent to the erection, at a building abutting upon Queen's-road, Douglas-place, and Porchester-gardens, Paddington, of division walls 14 in. thick throughout their height, in the front blocks next to Queen's-road.—Consent.

Construction of Building.

Paddington, South.—The front external walls of a building next to Queen's-road and Porchester-gardens, Bayswater, being of less thickness than required by the Act (Messrs. John Belcher, R.A., & J. J. Joass for Messrs. W. Whiteley, Ltd.).—Consent.

GENERAL BUILDING NEWS.

CHURCH REPAIR, AVINGTON.

Avington Church has recently been put into a sound state of repair. The church is an interesting one in the Diocese of Oxford. Its length is 75 ft. and width 15 ft. It belongs to the early part of the XIIth century. The works have been executed by Messrs. Bosher & Sons, of Cholsey, under the direction and supervision of Mr. S. Slingsby Stallwood, F.S.A., architect, of Reading.

ENLARGING ST. MARK'S CHURCH, PORTSMOUTH.

The work of enlarging and altering St. Mark's Church, North End, is nearing completion. The work, which is being carried out by Mr. Frank Privett, upon designs made by Messrs. Rake & Cogswell, consists in the transformation of the old vestry into a lady chapel, and the extension of the west end by about 20 yards. The alterations will provide for some 420 extra seats, and the estimated cost is 3,500*l.*

WINCHESTER COUNTY SCHOOL FOR GIRLS.

A new County School for Girls has been erected at Winchester, from the designs of Mr. W. J. Taylor, County Surveyor. The roof line is broken with a central turret and with circular heads to windows, and the whole of the building is composed of half-brindled bricks, with ribbed brick arches, and Portland stone dressings. The front of the building faces south, and is placed on an elevated plateau with a terrace in front. The main feature of the interior is a central hall, with an arched ceiling, lit on one side with large windows of leaded lights, running up into dormers This hall is 48 ft. long by 24 ft. wide, and around it are six classrooms. Two of these are divided from the central hall with glass screens, and when these are opened these rooms can be thrown into the hall, making it 48 ft. long by 48 ft. wide. Access to the central hall is gained from each of the two entrances by long corridors. Provision has been left at the end of each wing for future extension. The heating system is low-pressure hot water, put in by Messrs. Goodacre, Glover, & Butler, of Nottingham. The walls are decorated with Duresco primrose, with a painted dado of olive green; the artificial lighting is by means of Sugg's patent incandescent lamps. Messrs. Dibben, of Southampton, have been responsible for the lighting arrangements. The builders have been Messrs. Pethick Bros., Ltd., of Plymouth, and Mr. H. H. France has had charge of the work on behalf of the County Council as Clerk of Works. The grounds have been enclosed with a plain steel fence, and have been laid out by Messrs. Hillier & Son.

NEW BUILDINGS IN LONDON.

Factory premises, Falmouth-road, S.E.; Mr. M. E. Collins, architect, 61, Old Broad-street, E.C. Public hall, High-street, Clapham, S.W.; Messrs. W. H. Wakeford & Son, architects, 267, Clapham-road, S.W.

TRADE NEWS.

The Council school at Gt. Staughton, Hunts, is being warmed and ventilated by means of D. O. Boyd's Hygiastic ventilating school grates, made by Messrs. O'Brien, Thomas, & Co., Upper Thames-street, London, E.C., and Excelsior Works, Rollins-street, Old Kent-road, S.E. The firm have also supplied these grates to the Holy Trinity Schools, Westminster.

The Board of the Associated Portland Cement Manufacturers (1900), Ltd., have elected Lord St. Davids a Director and Chairman of the company, Mr. F. A. White having resigned the Chairmanship in order that it might be offered to Lord St. Davids. Mr. White becomes a Vice-Chairman in the place of Mr. H. Osborne O'Hagan, who resigned his Vice-Chairmanship for the same reason, but retains his position on the Board as a Managing Director. Mr. E. W. Brooks has resigned his Vice-Chairmanship in order that it may be available whenever it seems desirable to fill the vacancy, but retains his position as a Managing Director.

Messrs. Farrow & Jackson, Ltd., No. 16, Great Tower-street, E.C., have received notification of Warrant of Appointment as makers of cellar fittings, etc., to his Majesty King George, in succession to the Warrant held from his late Majesty and from Queen Victoria.

The new schools, Southmoor, near Newcastle, are being ventilated by means of Shorland's patent exhaust roof ventilators, supplied by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

Messrs. R. Waygood & Co., Ltd., have just received an order from the North German Lloyd, Bremerhaven, Germany, to fit two electric passenger lifts on each of their liners, s.s. Kaiser Wilhelm II. and the s.s. Kronprinzessin Cecilie, similar to the two already fitted by them on the s.s. George Washington, of the same line. Messrs. Waygood's lifts have also been fitted on the Hamburg American liner Kaiserin Auguste Victoria.

BOOKS RECEIVED.

WHITAKER'S ALMANACK, 1911. Pp. 971. 2s. 6d.

WHITAKER'S PEERAGE, BARONETAGE, KNIGHTAGE, AND COMPANIONAGE, 1911. Pp. 812.

THE "PRACTICAL ENGINEER" ELECTRICAL POCKET-BOOK AND DIARY, 1911. Pp. 566. (Technical Publishing Company, Ltd. 1s. 6d. net.)

THE "PRACTICAL ENGINEER" POCKET-BOOK AND DIARY, 1911. Pp. 703. (Technical Publishing Company, Ltd. 1s. 6d. net.)

THE WORKMEN'S COMPENSATION ACT, 1906, WITH NOTES, RULES, ORDERS, AND REGULATIONS. By W. Addington Willis, LL.B. (Lond.). Pp. 393. (Butterworth & Co. and Shaw & Sons.)

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENTS.

The office address of Mr. Edmund A. Fermaud, architect, is now 17, Dartmouth Park-road, Highgate-road, N.W. —— The manufacture of the lifts of Messrs. Smith, Major, & Stevens, Ltd., late Archibald Smith & Stevens, electric and hydraulic engineers, Janus Works, Queen's-road, Battersea, London, S.W., has been transferred to new works (Abbey Works) at Northampton, where the manufacturing facilities have been greatly increased. Attention to London customers will still be given by the staff at Janus Works, Battersea.——Messrs. Robt. Ingham Clark & Co., Ltd., have removed their City offices, and all communications usually sent to St. Helen's-place should be addressed to their new premises at Caxton House, Westminster, S.W., where their telephone number will be "Westminster 92."

THE NEW PARLIAMENT (SOME ELECTIONS).

Amongst the members returned to the new Parliament are Mr. John Tudor Walters* (Sheffield, Brightside), architect and surveyor; Mr. Harold H. Smith (Warrington) and Mr. Walter F. Perkins* (Hampshire, New Forest), surveyors; Mr. James Boyton* (Marylebone, East), of Messrs. Elliott, Son, & Boyton, and Mr. William Edgar Horne* (Surrey, Guildford), of Messrs. Horne & Co., a Vice-President of the Surveyors' Institution, auctioneers, surveyors, etc.; Sir Daniel Ford Goddard,* A.M.Inst.C.E. (Ipswich); Mr. J. Allen Baker,* principal of Messrs. Baker & Sons, of Willesden (Finsbury, East); Mr. George N. Barnes* (Glasgow, Blackfriars), General Secretary, 1896-1908, of the Amalgamated Society of Engineers; Mr. Ernest Henry Lamb (Rochester), member of the City of London Corporation; Mr. John Norton Griffiths* (Wednesbury), Managing Director of Griffiths & Co., Ltd., contractors, etc., and senior partner of Messrs. Griffiths, Bruce, Marriott, & Co.; Mr. Charles Duncan* (Barrow-in-Furness), and Mr. Patrick O'Brien* (Kilkenny), engineers; Sir John Jackson,* contractor (Devonport); Mr. William Tyson Wilson* (Lancashire, S.E., West Houghton), Chairman, 1898-1906, of the General and Executive Councils of the Amalgamated Societies of Carpenters and Joiners; Sir William J. Bull,* Chairman of Messrs. J. W. Singer & Sons, bronze founders (Hammersmith); Lord Balcarres* (Lancashire, N., Chorley), Trustee of the National Portrait Gallery, Vice-Chairman National Trust, Hon. Secretary Society for the Protection of Ancient Buildings, and Chairman National Art Collections Fund; the Right Hon. Aretas Akers-Douglas* (Kent, East), formerly First Commissioner of Works and Home Secretary; Professor H. B. Lees Smith* (Northampton), Professor of Public Administration, University of Bristol; Sir Philip Magnus* (University of London), promoter of technical instruction; Mr. J. W. Summers* (Flint District), of Messrs. John Summers & Sons, Hawarden Bridge, iron masters; the Right Hon. Sydney Buxton* (Tower Hamlets, Poplar), President of the Board of Trade, and formerly Postmaster-General; Mr. C. T. Needham (Manchester, South-West), of Messrs. John Needham & Sons, iron and steel merchants; and Sir G. W. Agnew* (West Salford), formerly of Messrs. T. Agnew & Sons, art publishers, and President Printsellers' Association. An asterisk signifies re-election.

THE WOLSEY (HAMPTON COURT) TAPESTRIES.

Adverting to the description of the tapestries in our issue of December 10 (page 731, *ante*), we understand that the purchase by Capt. Lindsay of the panel of King David and the Seven Deadly Sins, for 6,600*l.*, in Messrs. Puttick & Simpson's auction rooms, was not made on behalf of Sir Edward Tennant, as some papers have stated.

LABOUR EXCHANGES.—NOVEMBER.

The official returns for the four weeks ending on November 25 show that in 138 exchanges there were 100,273 applications on the register, as compared with 96,714 on October 28; the applications received numbered 154,178, and 37,716 vacancies were filled. The ratio of vacancies filled by the exchanges to vacancies notified by employers increased from 84 per cent. in October to 85 per cent. in November. Of applications on the register at the end of the four weeks (excluding 3,891 solely for temporary work in the Post Office), the highest percentages were in the groups of conveyance (17·0), building and construction (13·8), and general labourers (13·8).

TIMEBALL IN KINGSWAY.

In Kingsway may now be seen a timeball, which has been erected over the dome of Benson's advertising offices, and is visible from Holborn and Aldwych. This timeball travels slowly up the mast ten minutes before each hour from 9 a.m. to sunset, and is released by signal from Greenwich exactly at the hour.

TRADE SCHOLARSHIPS FOR BOYS.

Attention is drawn to the opportunities afforded by the London County Council's trade scholarships. By means of these scholarships boys may secure free education (with maintenance grant) at technical day schools, where they will receive such instruction as will prepare them on leaving school to take up either apprenticeships or employment in skilled trades. Skilled employment is more likely to be regular and permanent than is employment of an unskilled nature, and it is to be hoped that parents will consider the advantages offered by the Council's Trade Schools for Boys. The following are some of the conditions:—(*a*) No candidate is eligible whose parents (or guardians) do not reside within the area of the administrative county of London; (*b*) no candidate is eligible whose parents' (or guardians') annual income exceeds 160*l.*; (*c*) candidates who are in attendance at public elementary schools must have reached the qualifying standard at least one year previously; (*d*) applications must be supported by the recommendation of head masters in respect of the intelligence, conduct, industry, and dexterity in handicraft of the candidates; (*e*)

parents (or guardians) of candidates are required to sign a declaration that they intend the candidates, if successful, to enter the trade in which they will receive training during the tenure of their scholarships. The scholarships will be awarded on the result of an examination to begin on Wednesday, March 8, 1911. The examination in handicraft will be held in April or May. Forms of application may be obtained from the Education Officer, Mr. R. Blair, and must be returned not later than Saturday, January 21, 1911.

THE L.C.C. BEAUFOY INSTITUTE.

At the Beaufoy Institute in Prince's-road, Lambeth, the prize distribution took place on the 19th inst., when there was an exhibition of work by both the day and evening students Mr. Mark H. Beaufoy, who presided, remarked that the institute had made a very good start, and promised to be of enormous value, not only to that particular locality, but to the whole of London. Mr. A. Ritchie-Scott, B.Sc., gave a general report of the work which is being carried on, and mentioned that there were at the present time about 200 students connected with the night school. The prizes were distributed by Mrs. Mark H. Beaufoy.

CLAPHAM SCHOOL OF ART.

Students of the London County Council Clapham School of Art met at No. 6, Edgeley-road, High-street, S.W., on the 16th inst. to receive their awards from the hands of Mr. J. Young Hunter, when an exhibition of work was on view. Mr. R. M. Sebag-Montefiore, who presided, emphasised the fact that the County Council took a particular interest in those schools which gave higher education in the arts. Mr. Young Hunter congratulated the students on the high standard of their work, particularly in life drawing and imaginative sketches.

THE ROYAL COLONIAL INSTITUTE.

Structural alterations have just been carried out at the Royal Colonial Institute, in Northumberland-avenue, W.C. Founded in 1868, it was at first located in the Strand. In 1883 the site of the present premises in Northumberland-avenue was acquired, and a portion of the building occupied two years later, the remainder being leased to the Admiralty. That lease having expired, the Institute has now taken over the whole building for its own purposes. In place of the seven rooms previously occupied, there are now twenty-five rooms at disposal. Apart from the furnishing, the alterations and extensions have involved an outlay of about 9,000*l*. The first floor is given over to the library of 80,000 volumes relating to the British Empire. The newspaper-room, which embraces the whole of the second floor, contains files of all the Colonial papers and official gazettes. A new department is the law library and maproom, which contains all the Colonial statutes, law reports, and other legal information relating to Greater Britain. The architects of the alterations were Messrs. Hart & Waterhouse.

THE ROYAL SANITARY INSTITUTE.

At an examination in Sanitary Science as applied to Buildings and Public Works, held in London on December 9 and 10, twenty-one candidates presented themselves, and the following twelve candidates were granted certificates:—Alcock, S. P., Hampstead; Amery, W. F., Bath; Biggs, W. H., Axminster; Dutt, H. C., Westminster; Edgerton, L. G., Hounslow; Machattie, J. M., Charing Cross; Marles, C. W., Maryland's-road; Marshall, G. A., Canonbury; Menezes, T. S. G., South Kensington; Morfey, H. O., Kensington; Parham, W. H., Westgate; Peters, H., Bridgwater. At an examination for Women Health Visitors and School Nurses, held in London on December 9 and 10, forty-one candidates presented themselves, and twenty-three candidates were granted certificates. At an examination in Hygiene in its bearing on School Life, held in London on the same days, nine candidates presented themselves for the certificate, and three for Part I. only, and seven candidates were granted certificates. At an examination for Inspectors of Nuisances, held at the same time, seventy-eight candidates presented themselves, and forty-one candidates were certified, as regards their sanitary knowledge, competent to discharge the duties of Inspector of Nuisances under the Public Health Act, 1875.

CHURCH BUILDING SOCIETY.

The Incorporated Society for Promoting the Enlargement, Building, and Repairing of Churches and Chapels held its usual monthly meeting on the 15th inst. at the Society's House, 7, Dean's-yard, Westminster Abbey, S.W., the Rev. Canon C. F. Norman in the chair. Grants of money were made in aid of the following objects, viz.:—Building new churches at Mitcham, St. Barnabas (City of London School Mission), Surrey, 150*l*.; and Cardiff, St. Stephen, 150*l*.; and towards enlarging or otherwise improving the accommodation in the churches at Coldred, St. Pancras, near Dover, 15*l*.; Highgate, St. Augustine, Middlesex, 75*l*.; Walton-on-the-Hill, St. Mary, Lancs, 40*l*.; Walpole, St. Peter, Norfolk, 45*l*., and Wittersham, St. John-the-Baptist, 40*l*. A grant of 40*l*. was also made from the Special Mission Buildings Fund towards building a mission church in the parish of St. Nicholas, Plumstead, Kent. The following grants were also paid for works completed:—Headbourne Worthy, St. Swithin, Surrey, 45*l*.; Lightbourne, St. Luke, Manchester, 150*l*.; Southend-on-Sea, St. Erkenwald, 200*l*.; Whaplode, St. Mary, Lincs, 25*l*.; Gaywood, St. Faith, Norfolk, 60*l*. on account of a grant of 120*l*.; Longton, St. Chad, Staffs, 75*l*., being balance of a grant of 225*l*.; and Dockenfield, The Good Shepherd, Frensham, Surrey, 35*l*. In addition to this the sum of 90*l*. was paid towards the repairs of eleven churches from trust funds held by the Society. The Society likewise accepted the trust of a sum of money as a repair fund for the Church of St. Paul, Kensington, Middlesex. The grants made at this meeting bring the amount voted during the present year to a total of over 9,000*l*.

MIDDLESEX COUNTY COUNCIL.

At the meeting of the Council on December 15, the Chairman (Alderman Regester) moved, in pursuance of notice, the following motion:—"That it be referred to the Guildhall Extension Committee to consider and report upon a suggested scheme for the clearing of the whole site of the Guildhall, and the construction, at a less cost than originally estimated, of an entirely new building." The Chairman said that after much consideration he felt that it was his duty to bring this matter forward. They were dealing with one of the finest sites in London. When the matter was first discussed, the alternatives were between clearing the site and making alterations, a difference of 20,000*l*. or 30,000*l*. To carry out the alterations would cost 40,000*l*. or 50,000*l*., after which the building would be inadequate for the needs of the Council. He did not think that the members quite understood what was going to happen if the alterations were made. The whole length on the eastern front of the site they were going to build upon amounted to 167 ft., and the amount of the buildings they were going to leave up for economy amounted to only 16 ft., which, he contended, was ridiculous. He had interviewed Mr. J. S. Gibson, the architect for the building, and Mr. Wakelam, the architect to the County Council, who was acting in collaboration with Mr. Gibson, and both were very strongly of opinion that it would be far better to clear the whole site and rebuild than to make alterations and additions. In conclusion, he strongly urged the Council to unanimously agree to the motion he had put forward, and not, for the sake of a little economy, to have alterations made which would be inadequate. Several members endorsed the Chairman's remarks as to the inadequacy of the buildings if alterations were made, stating that every year more and more business was being done by the Council, necessitating, of course, the use of larger buildings. The motion was agreed to unanimously. The County Engineer and Surveyor was authorised to kerb a portion of the footpath on the Uxbridge (main) road at an estimated cost of 20*l*. Messrs. Kavanagh & Sons are to lay a surface water-drain at Potter's Bar, the contract price being 370*l*., while Mr. Clift Ford is to fence a portion of the Harrow (main) road at Wembley, the contract price being 68*l*.

SOME BILLS FOR NEXT SESSION.

Amongst the projects which will be introduced during the ensuing session we may mention the measures promoted by the Metropolitan Water Board for ten new reservoirs in the western Middlesex districts, and for new waterworks by the Corporations of Rotherham, Ipswich, Gloucester, Blackburn, and Merthyr Tydfil. Schemes for maritime and similar works are formulated by the Manchester Ship Canal Company, for a pier, 670 yds. long, at Eastham; by the Upper Medway Conservancy Board, for improving the navigation of the Medway between Tonbridge and East Farleigh; by the Chiswick Urban District Council, for river walls and embankments; by the Inverness Harbour authorities, for a breakwater and the dredging of the Ness Estuary; by the Clyde Navigation Trustees, for a tidal dock to cover 32 acres, and to cost over 1,000,000*l*., and a graving dock—to be the largest in the United Kingdom—at Renfrew; and by the Great Yarmouth Port and Harbour Commissioners, for a dock, having an area of 16 acres, at Great Yarmouth. A fresh company seek for powers to construct a railway through the northern remoter suburbs of London from Tilbury Docks to Feltham; the "various powers" Bill of the Corporation of London embraces further and better provisions in respect of street trading by hawkers, costermongers, and others, and of street cries and music, and in respect of the "proper arrangement, space, area, ventilation, or sanitation of premises used as kitchens for restaurants," etc., and for the restrictive registration of such premises, with similar restrictive regulations in regard to "the provision of adequate and proper sleeping accommodation for persons employed in . . . business establishments," and to the sufficient sanitary accommodation for the separate use of each sex in all trade and business premises; also for regulating the erection or continuance, under licence, of wooden or iron structures, and for further powers with reference to the shoring up of buildings, and the removal of house and trade refuse. The London County Council will apply for powers to carry out improvements in the Tabard-street, Crosby-row, and Grotto-place areas, Bermondsey and Southwark. Their scheme relates to an aggregate area of 16 acres, containing 875 houses, inhabited by 4,600 persons, most of whom are very poor. The schedule expressly provides for the retention of St. Stephen's Church. The church was built for 500 sittings in 1849-50 after the designs, in the early English style, of S. S. Teulon.

PATENTS.

APPLICATIONS PUBLISHED.*

27,109 of 1909.—Ernest Schellig: Partitions or screens which are capable of being rolled up.

27,296 of 1909.—Charles Frederick Farrington and John Evans: Water-pressure reducing apparatus, for house and other services.

27,338 of 1909.—James Parker: Windows.

2,319 of 1910.—James Hastwell: Brick-making machinery.

3,085 of 1910.—William Edward Lake (Sanitary Heating Company): Domestic stoves.

4,871 of 1910.—Frank William Beresford: Hinges for doors.

4,925 of 1910.—Robert Eccles and Samuel Eccles: Adjustable pipe-wrench.

5,662 of 1910.—Francis Ernest Gaurset Lanagan: Reversible windows.

9,001 of 1910.—Frank Richard Panichelli: Non-heating and non-inflammable fire-escapes extending ladder or staircase fixture.

12,628 of 1910.—James Rees and James William Henry Rees, and Nettlefold & Sons, Ltd.: Door check and spring closing apparatus.

13,303 of 1910.—Herman Nielsen: Circular-saw machines for cutting steel girders.

13,789 of 1910.—Albert John Meier: Structural slabs.

14,028 of 1910.—Menck and Hambrock ges: Supporting tracks for scoop-navvys.

16,268 of 1910.—Achille Knapen: Bricks, tiles, and the like for facing purposes.

17,703 of 1910.—William Henry Tonks: Jointed catches of casement fasteners.

18,518 of 1910.—Henry Cross: Shoe attachment for ladders.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

December 1.—By JOHN D. WOOD & Co. (at Stalbridge).

Stalbridge, Dorset.—Part of Thornhill Estate, 615 a., f.	£19,997

By J. M. SLY & Co. (at Ashford).

Hounslow.—176 and 178, Hanworth-rd. (s.), f., y.r. 77*l*.	1,100
Forest Hill.—42, Forest Hill-rd. (s.), u.t. 83 yrs., g.r. 6*l*. 15s., yr. 35*l*.	360

December 5.—By KINGSTONS & HOLDSWORTH (at Sutton Bridge).

Sutton Bridge, Lincs.—Farm, arable and garden land, 60 a., f.	4,900

December 6.—By DEBENHAM, TEWSON, RICHARDSON, & Co.

Spitalfields.—4 and 5, Osborne-pl., 12 and 14, Heneage-st., u.t. 67 yrs., g.r. 160*l*., p.	1,000
Regent's Park.—40, York-ter., u.t. 11 yrs., g.r. 50*l*., p.	300

By C. W. DAVIES & SON.

Islington.—17, Rheidol-ter., u.t. 16 yrs., g.r. 5*l*., y.r. 38*l*.	100

By HAMPTON & SONS.

Hampstead.—34 to 41, Buckingham-man., u.t. 90 yrs., g.r. 200*l*., gross rents 852*l*. 15s.	2,420
1 to 32, Cumberland-mansions, u.t. 89 yrs., g.r. 400*l*., gross rents 1,718*l*. 18s.	4,475
Clapham.—48, 52 to 70 (even), 57 to 65 (odd), 75 and 77, Edgeley-rd., u.t. 88 yrs., g.r. 540*l*., gross rents 3,528*l*. 4s.	7,440

By HILLYER & HILLYER.

Tottenham.—67, Paignton-rd., u.t. 70 yrs., g.r. 5*l*. 10s., w.r. 31*l*. 4s.	100
105, High-rd. (plot), f.	152

RECENT SALES—*Continued on page 800.*

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

List of Competitions, Contracts, etc.

For some Contracts still open, but not included in this List, see previous issues. Those with an asterisk (*) are advertised in this Number: Competitions, iv.; Contracts, iv. vi. viii. x.; Public Appointment, xv.; Auction Sales, —.

Certain conditions beyond those given in the following information, are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bonâ-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

***** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.**

Competitions.

JANUARY 14, 1911.—**Knightsbridge.**—Complete particulars of a competition for remodelling part of the Trevor Estate, Knightsbridge, will be found on page xvi. of our issue of October 15.

JANUARY 15, 1911.—**Berlin.**—The laying out of Rudesheim Square. Particulars gratis from the Direktion der Gesellschaft, Charlottenstrasse 60. See "Competition News" in our issue of November 26.

JANUARY 21, 1911.—**Taunton.**—DESIGN FOR A NEW ELEMENTARY SCHOOL.—Open to architects practising in the Borough of Taunton. Particulars from Mr. George H. Kite, Town Clerk, Municipal Buildings, Taunton.

JANUARY 31, 1911.—**Glasgow.**—BRANCH LIBRARY.—The Corporation invite competitive plans of a Branch Library proposed to be erected at Possilpark. Premiums of 50*l.*, 30*l.*, and 25*l.* respectively will be awarded. A plan of the site, along with a copy of the terms and conditions of the competition, may be obtained on application to the Subscriber, with whom designs, marked outside "Possilpark Library Competition," must be lodged. Mr. A. W. Myles, Town Clerk, City Chambers, Glasgow.

MARCH 1, 1911.—**Coventry.**—MUNICIPAL OFFICES.—The Coventry Corporation invite competitive designs for erection of Municipal offices and a Town Hall, to cost 50,000*l.* Premiums of 150*l.* (supplementary), 175*l.*, and 125*l.* Mr. E. Guy Dawber, F.R.I.B.A., has been appointed assessor. See article on page 686 and advertisement on page iv. in our issue of December 3. Also see advertisement in issue of November 19 for further particulars.

MARCH 15, 1911.—**San Salvador.**—SCHEME FOR A CITY THEATRE.—First premium, 8,000 francs; second, 4,000 francs. Particulars from Mr. M. J. Kelly, 8, Idol-lane, E.C.

MARCH 31, 1911.—**Romford.**—The Town Planning and Modern House and Cottage Exhibition invite designs for the general plan of Gidea Park, Squirrels Heath, Romford. For further particulars see advertisement in our issue of September 17, and of October 8.

MARCH 31, 1911.—**Trondhjem, Norway.**—PROPOSED HARBOUR AND RAILWAY EXTENSION.—Competitive designs for above are invited by the Joint Committee of the State Railways and the City Harbour Commissioners. See our issue of November 5, page 563, and that of October 15, page 444, for further information.

APRIL 15, 1911.—**Havana.**—Project for a Presidential Palace. See "Competition News" in issue of November 26. Particulars may be obtained at the Cuban Legation, 3, Grosvenor-mansions, Victoria-street, S.W.

JUNE 10, 1911.—**Aspatria, Cumberland.**—The U.D.C. invite engineers to submit plans and estimates of a scheme of sewerage and sewage disposal for their district. The surveyor will give particulars required, and plans and estimates must be delivered to Mr. F. Richardson, Clerk to the Council, Aspatria, Cumberland, on or before June 10 next.

NOVEMBER 1, 1911.—**City of St. Petersburg.**—MONUMENT TO ALEXANDER II.—Particulars in our issue of August 13, 1910.

* DECEMBER 29, 1911.—**Glasgow.**—DESIGN FOR A BRIDGE.—Designs are invited (Alexander Thomson Travelling Studentship) for a bridge. Premiums of 60*l.* and 20*l.* are offered. See advertisement in this issue for further particulars.

* NO DATE.—**Bradford.**—INFIRMARY.—The Board of Management of the Bradford Royal Infirmary invite competitive plans, with estimates, for the erection of a new infirmary on a site in Duckworth-lane. See advertisement in this issue for further particulars.

NO DATE.—**Llandrindod Wells.**—The U.D.C. invite designs for a pavilion in the Recreation Ground. Particulars from Mr. D. C. Davies, Clerk to the U.D.C., Llandrindod Wells.

NO DATE.—**Rio de Janeiro.**—The Chamber of Deputies of Brazil contemplate the erection of a Faculty of Medicine, with a clinical hospital, in Rio de Janeiro. Conditions may be seen at the Office National du Commerce, 3, Rue Feydeau, Paris.

NO DATE.—**Southport.**—DESIGN FOR A NEW PUBLIC ELEMENTARY SCHOOL.—Open to architects practising in the Borough and in Birkdale. Particulars from Mr. J. Ernest Jarratt, Town Clerk, Town Hall, Southport.

Contracts.

BUILDING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

DECEMBER 28.—**Hull.**—ALTERATIONS.—For alterations to premises, Caroline-street. Plans, etc., may be seen at the office of Mr. T. Brownlow Thompson, architect, 15, Parliament-street, Hull.

DECEMBER 29.—**Aberdare.**—ALTERATIONS, PAINTING, ETC.—For carrying out alterations, repairs, painting, etc., to Tabernacle Congregational Church and School, Duke-street. Drawings, etc., may be seen at the office of Mr. J. Llewellin Smith, M.S.A., Aberdare.

* DECEMBER 30.—**Hull.**—TRAINING COLLEGE.—The Hull Education Committee invite tenders for new training college, Cottingham-road, Hull. See advertisement in this issue for further particulars.

* DECEMBER 30.—**Staffordshire.**—COUNCIL SCHOOL.—The Staffordshire Education Committee invite tenders for the erection and completion of a new Council school for 308 children at Baddesley Green, near Milton, North Staffordshire. See advertisement in this issue for further particulars.

DECEMBER 31-JANUARY 10, 1911.—**Bedlington Station.**—COUNCIL SCHOOL.—Northumberland Education Committee invite tenders for the erection of a new Council school, to accommodate 568 scholars. Name and address, together with a deposit of 2*l.* 2s. for specification, etc., to Mr. C. Williams, Secretary to the Education Committee, the Moot-hall, Newcastle-on-Tyne, not later than December 31.

DECEMBER 31.—**Gilfach, Bargoed.**—RESIDENCE.—For the erection of a residence for Mrs. Williams on Hillside Park. Plans, etc., may be seen at the office of Mr. Idris Leyshon, architect and surveyor, 7, Hanbury-road, Bargoed.

DECEMBER 31.—**Hereford.**—PUBLIC LIBRARY EXTENSION.—The Extension Committee of the Free Public Library invite tenders for the extension of the present building. Plans may be seen, and quantities obtained from the architects, Messrs. Groome & Bettington, Hereford, on deposit of 3*l.*

* JANUARY 1, 1911.—**Gorleston-on-Sea.**—NEW BUILDINGS.—The Governors of the East Anglican Institution for Blind and Deaf Children invite tenders for erection of new buildings. See advertisement in this issue for further particulars.

JANUARY 2, 1911.—**Belfast.**—COALING STAGE.—The Directors of the Great Northern Railway Company (Ireland) invite tenders for the construction of a coaling stage at their locomotive depôt, Adelaide and Windsor Station, near Belfast. Drawings, etc., may be inspected at the Chief Engineer's Office, Amiens-street Terminus, Dublin, and the District Engineer's Office, Belfast. Quantities and form may be obtained, on payment of 2*l.*, from Mr. T. Morrison, Secretary, Secretary's Office, Amiens-street Terminus, Dublin.

JANUARY 2, 1911.—**Bournemouth.**—ALTERATIONS.—The T.C. invite tenders for alterations to "Brading," Stafford-road, and other works in connexion therewith. Full particulars can be obtained of Mr. F. W. Lacey, M.Inst.C.E., Borough Engineer and Surveyor, Municipal Offices, at whose office drawings can be seen, provided 1*l.* 1s. has been previously deposited.

JANUARY 4, 1911.—**Darlington.**—RECONSTRUCTION OF PRINTING PREMISES.—Sole tenders are invited by the *Darlington and Stockton Times* Newspaper Company, Ltd., for the reconstruction of premises in Printing House-square, Darlington. Plans, etc., may be seen until December 31, 1910, at the offices of Messrs. Hoskins & Brown, architects, Court-chambers, Darlington.

* JANUARY 4, 1911.—**Hove.**—UNDERGROUND LAVATORY.—The Hove B.C. invite tenders for an underground lavatory, corner of Goldstone-street. See advertisement in this issue for further particulars.

* JANUARY 4, 1911.—**Poplar, E.**—NEW POST-OFFICE.—The Commissioners of H.M. Works, etc., invite tenders for erection of new branch post-office at Poplar. See advertisement in this issue for further particulars.

JANUARY 5, 1911.—**Llwydcoed, Aberdare.**—COTTAGE HOMES.—Merthyr Tydfil Union invite tenders for the erection of two pairs of Cottage Homes for Children. Plans, etc., may be seen, and quantities obtained, at the office of the architect, Mr. Thomas Roderick, Clifton-street, Aberdare.

JANUARY 5, 1911.—**Norton and Welton.**—COUNCIL SCHOOLS.—The Education Committee of the C.C. of the East Riding of Yorkshire invite tenders for (*a*) the erection of a Council school for girls and infants, with accommodation for 520 children, at Norton (Malton); (*b*) the erection of a Council school for 202 children and teacher's house at Welton. Plans, etc., may be seen, and any further information obtained, on application to the Building Surveyor, County Hall, Beverley. Quantities and forms of tender for each work will be forwarded upon depositing 1*l.* 1s.

JANUARY 5, 1911.—**Scarborough.**—ENGINE-HOUSE.—The Water Committee invite tenders for the construction of an engine-house, etc., at the Cayton Bay Pumping Station. Plans, etc., may be seen, and quantities obtained, at the Water Engineer's Office, Town Hall, Scarborough, on and after December 30.

JANUARY 7, 1911.—**Dunfermline.**—TENEMENT.—For the several works required for the erection of tenement in New-street, off Townhill-road. Plans can be seen, and quantities obtained, on application at the office of Messrs. T. Hyslop Ure & Beveridge, architects, 43, Carnegie-street, Dunfermline.

JANUARY 7, 1911.—**Fourlanesend, near Millbrook.**—COUNCIL SCHOOL.—The Cornwall Education Committee invite tenders for the erection of a new Council school. Plans, etc., may be seen (by appointment) at the District Education Office, Saltash, or at the office of Mr. B. C. Andrew, Architect to the Committee, Biddick's-court, St. Austell, from whom all particulars may be obtained.

JANUARY 7, 1911.—**Hunslet, Leeds.**—MOULDING SHOP AND RECONSTRUCTION OF ROOF.—For the erection of new moulding shop and reconstruction of roof for Messrs. Catton & Co., Ltd. Quantities may be obtained from Messrs. Myers-Beswick & Partners, 8, Park-square, Leeds, engineers, upon making a deposit of 10s. for each contract.

JANUARY 7, 1911.—**Normanton.**—SCHOOL CONVENIENCES.—Normanton District Education Sub-Committee invite tenders for the erection of new conveniences at the Normanton Common Girls' Council School. Specifications can be obtained on application to Mr. Percy Beaumont, Divisional Clerk, 128, Northgate, Wakefield.

JANUARY 7, 1911.—**Pudsey.**—SUNDAY SCHOOL AND INSTITUTE.—Part or whole tenders are invited for the erection of United Methodist Sunday School and Institute. Plans may be seen after the 27th inst. at Mr. Shackleton's offices, Manor House-street, Pudsey. Quantities supplied on application to Mr. W. Hugill Dinsley, architect, Chorley, Lancs, on deposit of 10s.

JANUARY 9, 1911.—**Carnetown, Abercynon.**—DWELLING-HOUSES.—For the erection of twenty or more dwelling-houses for the Salisbury Building Club. Plans, etc., can be obtained at the office of Mr. Treharne Jones, architect and surveyor, Nelson, *viâ* Cardiff.

* JANUARY 9, 1911.—**London, E.**—STRUCTURAL ALTERATIONS, ETC.—The Guardians of the Whitechapel Union invite tenders for structural alterations and the erection of a bathroom at "Whitehall," Whitehall-lane, Grays, Essex. See advertisement in this issue for further particulars.

* JANUARY 9, 1911.—**London, E.**—STRUCTURAL REPAIRS.—The Guardians of the Whitechapel Union invite tenders for structural repairs at Nos. 403-409, Mile End-road. See advertisement in this issue for further particulars.

* JANUARY 10, 1911.—**Bromley.**—POST-OFFICE EXTENSION.—The Commissioners of H.M. Works, etc., invite tenders for the extension of Bromley (Kent) Post-office. See advertisement in this issue for further particulars.

JANUARY 10, 1911.—**Milnrow.**—PUMPING STATION.—The Oldham Waterworks Committee invite tenders for the various works required in the construction of a pumping station. The drawings may be seen, and specifications, etc., obtained, on application to the Engineer, Mr. Charles J. Batley, M.Inst.C.E., at his office, Piethorn, Newbey, on payment of 2*l.*

JANUARY 10, 1911.—**Sheringham.**—COUNCIL SCHOOL.—The U.D.C. invite tenders for erection of new Council offices. Specification, etc., may be seen at, and quantities, etc., obtained from (on payment of a deposit of 2*l.*), Messrs. Stanley Simons & Co., architects, Sheringham.

* JANUARY 11, 1911.—**Chester.**—SORTING-OFFICE.—The Commissioners of H.M. Works and Public Buildings invite tenders for erection of new station sorting-office at Chester. See advertisement in this issue for further particulars.

* JANUARY 13, 1911.—**Staines.**—CHAPEL, LODGE, ETC.—The Staines U.D.C. invite tenders for chapel, lodge, and other buildings in connexion with a new cemetery. See advertisement in this issue for further particulars.

NO DATE.—**Bangor.**—ALTERATIONS AND ADDITIONS TO VICARAGE.—For alterations and additions to the Old Vicarage House, Bangor, to convert it into a Church House. Names to the architect, Mr. Harold Hughes, of the Diocesan Offices, Bangor.

NO DATE.—**Keighley.**—RESIDENCE.—For the erection of a detached residence at Brown-lane, Black-hill. Plans may be seen, and quantities obtained, upon application at the offices of Messrs. R. B. Broster & Sons, architects and surveyors, Craven Bank-chambers, Keighley, on and after the 26th inst.

NO DATE.—**London.**—COTTAGES.—For the erection of twenty cottages, on the Connaught Garden Estate. Plans and specifications may be seen at the offices of Messrs. Belfrage & Saville, architects, 27, Chancery-lane, W.C.

NO DATE.—**St. Weonards.**—COTTAGE.—For the erection of a cottage at St. Weonards for Mr. E. W. Howell, C.C. Names to Mr. Ernest Davies, M.S.A., architect, 132, Widemarsh-street, Hereford.

ENGINEERING, IRON, AND STEEL.

DECEMBER 27.—**Marple.**—CAST-IRON PIPES.—The U.D.C. invite tenders for the supply of cast-iron water mains. Particulars and forms may be obtained from Mr. D. J. Diver, Surveyor, Public Offices, Marple.

ENGINEERING, etc.—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

DECEMBER 31.—**Erdington.**—IRON FENCING.—The U.D.C. Parks Committee invite tenders for the supply and fixing of about 1,762 yds. of light iron fencing at Brookvale Park. Drawings, etc., may be obtained upon application to Mr. Herbert H. Humphries, Engineer and Surveyor, Council House.

JANUARY 3, 1911.—**Wandsworth, S.W.**—STREET LAMP COLUMNS, LANTERNS, ETC.—The B.C. invite tenders for supplying and fixing street lamp columns, lanterns, fittings, etc., from March 31 next. Form of tender, etc., may be obtained, and form of contract seen, at the offices of Mr. Henry George Hills, Town Clerk, Council House, Wandsworth, S.W.

JANUARY 4, 1911.—**Bury.**—STEEL STEAM PIPES, ETC.—The Corporation invite tenders for the supply and erection of:—Suction A—Steel steam pipes, valves, and accessories. Section B—Cast-iron pipes, valves, and accessories, in connexion with the Chamber Hall Power Station. Specifications, etc., may be obtained from Mr. S. J. Watson, Electricity Works, Bury, on deposit of 1*l.* 1s.

JANUARY 7, 1911.—**Newtownards.**—REINFORCED CONCRETE RESERVOIR.—The Directors of the Ulster Print Works, Ltd., invite tenders for the construction, near Newtownards, of a reservoir in reinforced concrete, to hold 500,000 gallons. Plans, etc., may be seen, and specification, etc., can be obtained, upon payment of 10s. 6d. (which will not be returned), at the office of the engineers, Messrs. Swiney & Croasdaile, MM.Inst.C.E., Avenue-chambers, Belfast.

JANUARY 13, 1911.—**Staines.**—FENCING.—The U.D.C. invite tenders for supplying unclimbable wrought-iron railing and gates, together with a short length of ornamental wrought-iron fencing with entrance gates, and erecting the same upon ground to be laid out as a cemetery. Plan may be seen at the office of Mr. E. J. Barrett, A.M.Inst.C.E., Surveyor, Town Hall, Staines, any day between 10.30 a.m. and 1 p.m. Specification may also be obtained upon application.

JANUARY 16, 1911.—**Londonderry.**—RECONSTRUCTION OF VIADUCT.—The Directors of the Great Northern Railway Company (Ireland) invite tenders for the reconstruction of a steel girder viaduct, carrying the railway over the River Mourne, near Londonderry. Drawings, etc., may be obtained on payment of 2*l.*, which will be refunded, from Mr. T. Morrison, Secretary. Secretary's office, Amiens-street Terminus, Dublin.

JANUARY 16, 1911.—**Salford.**—PUMPING PLANT.—The Corporation invite tenders for the supply and erection of steam-driven air lift pumping plant, at their Electricity Works, Frederick-road, Pendleton. Particulars may be had from the Borough Electrical Engineer, Electricity Works, Frederick-road, Pendleton, on receipt of a deposit of 2*l.* 2s. Extra copies 10s. each, which is not returnable.

* MARCH 1, 1911.—**Cape Town.**—VENTILATION AND HEATING.—The Controller and Auditor-General of Cape Town invites tenders for the installation of a system of ventilation, heating, and cooling in the new Law Courts, Cape Town. See advertisement in this issue for further particulars.

MISCELLANEOUS.

DECEMBER 27.—**Northallerton.**—CORRUGATED BUILDING.—For corrugated building, etc., for shop, sale room, refreshment room, and private offices in the Applegarth Auction Mart. Plans, etc., can be seen on application to Mr. John Todd, auctioneer, Northallerton.

DECEMBER 27.—**Oldham.**—CONSTRUCTION OF A DUTCH PIT, ETC.—The Cemeteries Committee invite tenders for the construction of Dutch pit, etc., at Greenacres Cemetery, particulars of which may be obtained at the Borough Surveyor's Office.

DECEMBER 31.—**Walthamstow.**—FIRE BRIGADE PETROL MOTORS.—The U.D.C. invite tenders for the supply and delivery of two fire brigade petrol motors. Specification, etc., may be obtained from Mr. C. Sydney Watson, Clerk to the Council, Town Hall, Walthamstow, on depositing 2*l.* 2s.

* JANUARY 2, 1911.—**Hendon.**—HIRE OF STEAM ROLLERS.—The Hendon U.D.C. invite tenders for the hire of steam rollers, to work within their district, for periods of one, three, or five years. See advertisement in this issue for further particulars.

JANUARY 3, 1911.—**Manchester.**—FORMATION OF SITE FOR LAKE.—The Parks and Cemeteries Committee invite tenders for the formation and construction of the site of a lake at Heaton Park. Plans, etc., may be seen, and form obtained, on application at the City Surveyor's Office, Town Hall, Manchester, on payment to the City Treasurer of 2*l.* 2s. All cheques and post-office orders are to be made payable to the order of "The Corporation of Manchester."

JANUARY 4, 1911.—**Blackpool.**—HIRE OF CONTRACTOR'S PLANT.—The Corporation invite tenders for the supply and delivery, on hire, carriage paid, of locomotive, permanent way, and side-tipping wagons. Further particulars can be obtained on application to Mr. John S. Brodie, Borough Engineer, Town Hall, Blackpool.

JANUARY 9, 1911.—**London.**—RENEWAL OF ZINC ROOF.—The Whitechapel Guardians invite tenders for the renewal of the zinc roof on a portion of the Vallance-road Infirmary. Specification can be obtained on application to the Steward of the Infirmary, 74, Vallance-road, N.E.

JANUARY 10, 1911.—**London.**—COLLECTION, ETC., OF REFUSE.—The London C.C. invite tenders for the collection, removal, and disposal of slop, sludge, and other refuse taken from its tramway conduits, etc. Full particulars and form of tender, etc., may be obtained from the Chief Officer, London C.C. Tramways, 62, Finsbury-pavement, E.C.

JANUARY 13, 1911.—**Staines.**—LAYING-OUT OF NEW CEMETERY.—The U.D.C. invite tenders for the laying-out, etc., of about 4½ acres of ground to be used as a cemetery. Plan may be seen at the office of Mr. E. J. Barrett, A.M.Inst.C.E., Surveyor, Town Hall, Staines, any day between 10.30 a.m. and 1 p.m. Specification may also be obtained on application.

JANUARY 16, 1911.—**Winchester.**—SUPPLYING AND FIXING OFFICE FITTINGS.—Southampton C.C. invite tenders for the supply and fixing of deal and other office fittings at the new offices in Castle-avenue. Plans, etc., may be obtained at the office of Mr. W. J. Taylor, County Surveyor, The Castle, Winchester, on deposit of 5*l.* 5s. by cheque, payable to the "Hampshire C.C.," and crossed "Bank of England."

JANUARY 21, 1911.—**Norwich.**—ROAD TOOLS AND PLANT.—The Norfolk C.C. invite tenders for the supply of tools and plant. Full particulars and tender forms may be obtained from Mr. T. H. B. Heslop, M.Inst.C.E., County Surveyor, the Shirehouse, Norwich, on receipt of a 2d. addressed large envelope.

JANUARY 21, 1911.—**Norwich.**—TEAM LABOUR.—The Norfolk C.C. invite tenders for the supply of team labour on the main roads. Full particulars may be obtained from Mr. T. H. B. Heslop, M.Inst.C.E., County Surveyor, the Shirehouse, Norwich, on receipt of a 2d. addressed large envelope.

NO DATE.—**Mansfield.**—LEVELLING, ETC.—The Mansfield Sand Company, Ltd., invite tenders from contractors, having suitable plant for removing and spreading large quantities of sand, in levelling and shaping the spoil heaps and railway cuttings in part of their quarry. Names to Messrs. G. & F. W. Hodson, M.Inst.C.E., Loughborough.

ROADS, SANITARY, AND WATER WORKS.

DECEMBER 26.—**Blyth.**—MAKING-UP.—The U.D.C. invite tenders for making-up Carlton-avenue and back Plessey-terrace, Newsham, and Hedley-street, Waterloo. Plans, etc., may be seen, and forms obtained, at the offices of Mr. Robert Grieves, Surveyor to the Council, Seaforth-street, Blyth.

DECEMBER 28.—**Cork.**—ROAD WORKS.—The Cork C.C. invite tenders for contracts for works and maintenance of roads. Specifications and all other information and particulars can be obtained at the office of Mr. E. Callanan, Secretary to the Council, Courthouse, Cork.

DECEMBER 28.—**Potters Bar.**—MAKING-UP.—South Mimms R.D.C. invite tenders for making-up of Cotton-road. Plans, etc., can be inspected upon application to the Council's Surveyor, Mr. George Simcox, "Bearwood," Potters Bar, from whom forms may be obtained.

JANUARY 2, 1911.—**Broxbourne.**—LAYING PIPE SEWER.—The Ware R.D.C. invite tenders for the laying of cast-iron pipe sewer, with manholes, etc., in London-road and Cozen's-lane. Plans can be seen, and specifications and forms obtained, on application to the Surveyor to the Council, Mr. H. J. Jackson, Rye-road, Hoddesdon.

* JANUARY 2, 1911.—**Hendon.**—CAST-IRON PIPES, DRAINAGE, ETC.—The Hendon U.D.C. invite tenders for providing and laying of about 600 yds. of cast-iron pipes; also for certain surface-water drainage, blue-brick channelling, and paving works. See advertisement in this issue for further particulars.

JANUARY 2, 1911.—**Prestwich.**—MAKING-UP.—The U.D.C. invite tenders for the making-up of Milton-road, from St. Margaret's-road to Hey's-road. Quantities and any further information that may be required can be obtained from the Surveyor, Chester Bank, on payment of 1*l.* 1s.

JANUARY 3, 1911.—**Middleton.**—MAKING-UP.—The Corporation invite tenders for the making-up of Holland-street, Grey-street, Sarah-street, and Leater-street. Plans may be seen, and specifications, etc., obtained, on payment of 10s. 6d., on application to Mr. W. Welburn, Borough Surveyor, at his office, Town Hall, Middleton, between 9.30 and 10.30 a.m.

JANUARY 3, 1911.—**Whitley.**—NEW STREETS, ETC.—The Whitley and Monkseaton U.D.C. invite tenders for the following works, viz.:—(1) Laying out and constructing certain streets on the Whitley Links and Whitley North Links Estates; (2) constructing a new footway on the south side of Whitley-road, between Victoria-terrace and Station-road. Plans, etc., may be seen, and quantities, etc., obtained, on application at the office of Mr. A. J. Rousell, A.M.Inst.C.E., the Council's Surveyor, Council Offices, Whitley Bay, between the hours of 9 and 10 a.m. and 4 and 5 p.m.

JANUARY 4, 1911.—**Hemsworth.**—WATER SUPPLY WORKS.—The R.D.C. invite tenders for (contract No. 1) supplying of cast-iron socketed water main pipes; (contract No. 2) laying and jointing water main pipes, etc.; (contract No. 3) the erection of a water storage tank; (contract No. 4) the supplying and erecting of a cast-iron water storage tank to hold 30,000 gallons. Drawing, etc., can be seen, and quantities, with forms, obtained, on application to the Engineer, Mr. T. H. Richardson, of Hemsworth, near Wakefield, and on payment to him of a sum of 2*l.* 2s.

JANUARY 4, 1911.—**Ponders End.**—MAKING-UP PRIVATE STREET.—The U.D.C. of Enfield invite tenders for making-up the private street known as Northfield-road (part of). Plans, etc., can be seen, forms and all information obtained, on application to Mr. Richard Collins, the Council's Surveyor, Public Offices, Enfield, Middlesex, any day except Saturday.

JANUARY 4, 1911.—**Sunderland.**—LEVELLING, PAVING, ETC.—The Corporation invite tenders for levelling, paving, channelling, kerbing, etc., certain private streets "X" Loan. Drawings, etc., may be seen, and form, etc., obtained, at the Borough Surveyor's Office, Town Hall, on payment of 1*l.* 1s.

JANUARY 7, 1911.—**Stretford.**—PRIVATE STREETS WORKS.—The U.D.C. invite tenders for paving with granited rock, asphalt, etc., in certain streets and passages. Drawings, etc., may be seen, and form, etc., obtained, on application to Mr. Ernest Worrall, the Council's Surveyor, Council Offices, Old Trafford, any day during office hours, on payment by cheque of 2*l.* 2s.

JANUARY 10, 1911.—**New Southgate, N.**—PRIVATE STREET IMPROVEMENTS.—The U.D.C. of Southgate invite tenders for the making-up of Ollerton-road. Plans may be seen (on and after December 28) upon application to the Council's Surveyor, Mr. C. G. Lawson, C.E., from whom specification, etc., may be obtained, on depositing 2*l.* in cash.

JANUARY 10, 1911.—**Palmer's Green, N.**—SEWERS AND STREET IMPROVEMENTS.—The U.D.C. of Southgate invite tenders for the construction of sewers and for the making-up of Oakthorpe-road. Plans may be seen (on and after December 28) upon application to the Council's Surveyor, Mr. C. G. Lawson, C.E., from whom specification, etc., may be obtained, on depositing 2*l.* in cash.

* JANUARY 16, 1911.—**Streatham.**—ROAD-MAKING AND PAVING.—The Wandsworth B.C. invite tenders for making-up and paving part of Streatham High-road. See advertisement in this issue for further particulars.

JANUARY 20, 1911.—**Leeds.**—ROADS, DRAINS, SEWERS, ETC.—The Waterworks Committee invite tenders for the construction of an extension to Bramley service reservoir, Leeds, together with roads, drains, etc. Plans may be seen, and forms, etc., can be obtained, on application to Mr. C. G. Henzell, Waterworks Engineer, Leeds, on payment of 1*l.*

NO DATE.—**London.**—ROAD-MAKING.—For making about 850 ft. of roads, forming part of King George-avenue, Connaught-approach, and Prince Edward-crescent, on the Connaught Garden Estate. Plans, etc., may be seen at the offices of Messrs. Belfrage and Saville, architects, 27, Chancery-lane, W.C.

STONES, MATERIAL, AND STORES.

DECEMBER 29.—**Nottingham.**—LIGHTING REQUISITES.—The Lighting Committee invite tenders for the supply of lamps, lamp columns, glaziers' work, general repairs, etc. Further particulars and forms may be obtained from Mr. Carter, Lighting Inspector, St. John's-street.

JANUARY 2, 1911.—**Dover.**—ROAD MATERIALS.—The T.C. invite tenders for the supply and delivery of road materials. Forms of tender and specification may be obtained at the office of Mr. R. E. Knocker, Town Clerk, Town Clerk's Office, Castle Hill-road, Dover.

JANUARY 10, 1911.—**Perry Barr, Staffs.**—ROWLEY RAG AND CINDER.—The U.D.C. invite tenders for the supply and delivery of (*a*) Rowley rag and (*b*) blast furnace cinder. Specification, etc., may be obtained on application to Mr. Ernest Bailey, Surveyor to the Council, at the Council House, Green-lane, Hamstead, near Birmingham.

JANUARY 12, 1911.—**Manchester.**—FIRECLAY GOODS.—The Gas Committee invite tenders for the supply and delivery of the fireclay goods at their several gasworks. Full particulars and forms of tender may be obtained from Mr. Frederick A. Price, Superintendent, at the Gas Offices, Town Hall, Manchester, on deposit of 2*l.* 2s.

JANUARY 16, 1911.—**Croydon.**—DRAIN PIPES, STORES, AND ROAD MATERIALS.—The B.C. invite tenders for the supply of stoneware drain pipes, stores, and road materials. Conditions of contract may be inspected at the office of Mr. F. C. Lloyd, Town Clerk, Town Hall, Croydon.

JANUARY 21, 1911.—**Midhurst.**—ROAD MATERIALS.—The R.D.C. invite tenders for the supply of granite and tar macadam. Forms of tender can be obtained on application to Mr. Arthur G. Gibbs, Surveyor to the Council, Council Offices, Midhurst, Sussex.

JANUARY 21, 1911.—**Norwich.**—MATERIALS.—The Norfolk C.C. invite tenders for the supply of local gravel flints, etc., delivered on the main roads, and to various stations and staithes throughout the county. Full particulars may be obtained from Mr. T. H. B. Heslop, M.Inst.C.E., County Surveyor, the Shirehouse, Norwich, on receipt of a 2d. addressed large envelope.

JANUARY 23, 1911.—**Poplar, E.**—REFUSE REMOVAL AND SUPPLY OF STORES.—The Works Committee of the B.C. invite tenders for removal of road sweepings by barge or rail, and for supply of pipes, cement, etc. All particulars may be obtained on application to the Borough Surveyor, Mr. Harley Heckford, A.M.Inst.C.E., at the Council Offices, High-street, Poplar.

Public Appointment.

Nature of Appointment.	By whom Advertised.	Salary.	Application to be in
FOREMAN CARPENTER	Crown Agent for the Colonies	300*l.* per annum, etc.	No date.

RECENT SALES—*Continued from page 797.*

By S. Wallbrock & Co.
Forest Gate.—11 to 23 (odd), Lorne-rd., f., w.r. 209l. 6s. £1,675
Shrewsbury-rd., f.g. rents 10l., reversion in 86 yrs. 210
Canning Town.—56, 58, and 60, Swanscombe-st., f., w.r. 65l. 300
Camberwell. — Elmington-ter', f.g.r. 38l., reversion in 69 yrs. 930
Bermondsey.—Storks-rd., f.g.r. 12l., reversion in 71 yrs. 275
Ablett-st., f.g. rents 3l., reversion in 67 yrs. 150
Shepherd's Bush. — Percy-rd., f.g.r. 7l. 10s., reversion in 86 yrs. 180

' December 7.—By Fisher, Stanhope, & Co.
Hackney.—74 to 80 (even), Frampton Park-rd., u.t. 36¼ yrs., g.r. 20l., w.r. 146l. 600
8 to 11, Conrad-st., u.t. 36¼ yrs., g.r. 16l., w.r. 141l. 14s. 540

By Merretts.
Teddington.—Teddington-pk., The Lodge, f., p. 650

By Osborn & Mercer.
Wrotham, Kent. — Little Wrotham Farm, 26 a. 2 r. 7 p., f. 870

By Douglas Young & Co.
Stockwell.—22, Stockwell-rd. and stabling, f., e.r. 65l. 1,150

December 8.—By H. J. Bliss & Sons.
Hackney.—130, 132, and 134, Teesdale-st., f., w.r. 118l. 19s. 950
Bethnal Green.—11 to 15, St. Andrew's-st., u.t. 8 yrs., g.r. 10l., w.r. 234l. 13s. 320

By May & Rowden.
Croydon.—Clyde-rd., f.g. rents 50l., reversion in 54 yrs. 1,000
Canning-rd., f.g. rents 14l., reversion in 55 yrs. 280

By C. C. & T. Moore.
Wood Green.—Myddleton-rd., f.g. rents 40l., reversion in 77 yrs. 930
Whittington-rd., f.g.r. 78l., reversion in 75 yrs. 1,765

By Newbon & Shephards.
Highbury.—18, Aberdeen-rd., u.t. 48 yrs., g.r. nil, e.r. 45l. 315
Islington.—76, Pembroke-st., u.t. 39 yrs., g.r. 4l. 4s., w.r. 46l. 16s. 140

By Stimson & Sons.
Catford.—77 to 87 (odd), Brownhill-rd., u.t. 63½ yrs., g.r. 30l., w.r. 241l. 16s. 1,390
96, Brownhill-rd., u.t. 87¾ yrs., g.r. 6l., y.r. 30l. 270
30, Plassy-rd., u.t. 63¼ yrs., g.r. 5l., y.r. 28l. 245
Peckham.—22, Meeting House-rd., and i.g.r. 5l., u.t. 63½ yrs., g.r. 10l., w.r. 39l. 230
Walworth.—19, Finchley-rd., u.t. 40 yrs., g.r. 4l., y.r. 30l. 235
40, East-st. (s.), f., y.r. 44l. 640
Finsbury Park.—Gillespie-rd., f.g. rents 11l., reversion in 66 yrs. 270
Fulham.—190, Lillie-rd. (s.), u.t. 67 yrs., g.r. 9l. 9s., y.r. 55l. 425
Harringay.—Green-lanes, f.g. rents 56l., reversion in 85 yrs. 1,300
Hornsey.—Effingham-rd., f.g. rents 18l., reversion in 85 yrs. 405
Fairfax-rd., f.g. rents 18l., reversion in 85 yrs. 400
Mile End.—Albion-st., f.g.r. 3l., reversion in 7 yrs. 225

By J. A. & W. Tharp.
Dalston.—Brougham-rd., l.g. rents 77l., u.t. 35 yrs., g.r. nil 755
Stepney.—St. Dunstan's-rd., Busy Bee b.h., f., y.r. 36l. 500
Shoreditch.—14 to 20 (even) Henson-st., u.t. 24 yrs., g.r. 99l., w.r. 414l. 16s. 800

By Weston & Sons.
Clapham.—240, Clapham-rd., f., y.r. 84l. 1,000
Brixton.—40, St. James-rd., u.t. 12 yrs., g.r. 10l. 10s., p. 100

By Farebrother, Ellis, & Co.
Lambeth.—Wandsworth-rd., Thorne-st., etc., f.g. rents 57l. 18s., reversion in 21½ to 24 yrs. 2,230
210 and 212, Wandsworth-rd., f., w.r. 96l. 2s. 490
224 and 226, Wandsworth-rd. (s.), f., y.r. 80l. 950
250 and 252, Wandsworth-rd. (s), f., y. and e.r. 115l. 1,470
17 to 27 (odd), Brooklands-rd., f., w.r. 180l. 14s. 950
8 to 22 (even), Hemans-st., f., w.r. 247l. 1,130
Wandsworth-rd., site, area 18,700 ft., f. 700
1 to 11, Portland-cottages, f. 300

December 12.—By Kemsley.
Ilford.—7, 9, and 11, Roman-rd., f., w.r. 92l. 6s. 725

By Geo. E. Luck.
Holloway.—186, Elthorne-rd., u.t. 69 yrs., g.r. 8l., e.r. 36l. 255

December 13.—By Giddy & Giddy.
Battersea.—4 and 5, Albert Palace-man., u.t. 67 yrs., g.r. 625l., gross rents 1,472l. 550

By Frederick Warman.
Crouch End.—25, Bryanstone-rd., u.t. 79 yrs., g.r. 6l. 6s., e.r. 35l. 245

By Dyer, Son, & Hilton (on premises).
Blackheath.—4, Lee-pk., u.t. 47 yrs., g.r. 13l. 6s., p. 145

December 13 and 14.—By S. Walker & Son (at Tunbridge Wells).
Withyham and Hartfield, Sussex.—Part of the Buckhurst Estate, 1,098 a. 3 r. 36 p., f. 29,297

Contractions used in these lists.—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; p. for possession; e.r. for estimated rental; w.r. for weekly rental; q.r. for quarterly rental; y.r. for yearly rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; la. for lane; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; av. for avenue; gdns. for gardens; yd. for yard; gr. for grove; b.h. for beerhouse; p.h. for public-house; o. for offices; s. for shops; ct. for court.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

Per 1000 Alongside, in River.	£ s. d.
Best Stocks	1 12 0
Picked Stocks for Facings	2 10 0

Per 1000, Delivered at Railway Depôt.

	£ s. d.		£ s. d.
Flettons	1 8 0	Double Headers	13 7 6
Best Fareham Red	3 12 0	One Side and two Ends	17 7 6
Best Red Pressed Ruabon Facing	5 0 0	Two Sides and one End	18 7 6
Best Blue Pressed Staffordshire	3 15 0	Splays & Squints	15 17 6
Do. Bullnose	4 0 0	Best Dipped Salt Glzd. Str'tch'rs	10 17 6
Best Stourbridge Fire Bricks	3 14 0	Headers	10 7 6
Glazed Bricks.		Quoins, Bullnose, and Flats	14 7 6
Best White and Ivory Glazed Stretchers	10 17 6	D'ble Stretchers	16 7 6
Headers	10 7 6	Double Headers	13 7 6
Quoins, Bullnose, and Flats	14 7 6	One Side and two Ends	17 7 6
D'ble Stretchers	16 7 6	Two Sides and one End	18 7 6
		Splays & Squints	15 17 6

Second Quality White and Dipped Salt Glazed, £1 5s. per 1000 less than best.

	s. d.	
Thames and Pit Sand	6 6	per yard, delivered.
Thames Ballast	5 0	" "
Best Portland Cement	29 0	per ton, "
Best Ground Blue Lias Lime	19 0	" "

Note—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime 11s. 6d. per yard delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton at rly dpt.

STONE.

Per Ft. Cube.	s. d.
Bath Stone — delivered on road waggons, Paddington Depôt	1 6½
Do. do. delivered on road waggons, Nine Elms Depôt	1 8¼
Portland Stone (20 ft. average)—	
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 1
White Basebed, delivered on road waggons Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 2½

Per Ft. Cube, delivered at Railway Depôt.

	s. d.		s. d.
Ancaster in blocks..	1 10	Red Corsehill in blocks	2 2
Beer in blocks	1 6	Closeburn Red Freestone	2 0
Greenshill in blocks	1 10	Red Mansfield Freestone	2 4
Darley Dale in blocks	2 4		

York Stone—*Robin Hood Quality.*	s. d.

Per Ft. Cube, Delivered at Railway Depôt.

Scappled random blocks	2 10

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landings to sizes (under 40 ft. super.)	2 3
6 in. rubbed two sides ditto, ditto	2 6
3 in. sawn two sides slabs (random sizes)	0 11½
2 in. to 2½ in. sawn one side slabs (random sizes)	0 7½
1½ in. to 2 in. ditto, ditto	0 6

Hard York—

Per Ft. Cube, Delivered at Railway Depôt.

Scappled random blocks	3 0

Per Ft. Super., Delivered at Railway Depôt.

6 in. sawn two sides landing to sizes (under 40 ft. super.)	2 8
6 in. rubbed two sides ditto	3 0
3 in. sawn two sides slabs (random sizes)	1 2
2 in. self-faced random flags	0 5

SLATES.

Per 1000 of 1200 at Railway Depôt.

In. In.	£ s. d.	In. In.	£ s. d.
20×10 best blue Bangor	13 2 6	20×10 best Eur'ka unfading green	15 17 6
20×12 ditto	13 17 6	20×12 ditto	18 7 6
20×10 1st quality ditto	13 0 0	18×10 ditto	13 5 0
20×12 ditto	13 15 0	16×8 ditto	10 5 0
16×8 ditto	7 5 0	20×10 permanent green	11 12 6
22×10 best blue Portmadoc	12 12 6	18×10 ditto	9 12 6
16×8 ditto	6 12 6	16×8 ditto	6 12 6

TILES.

At Railway Depôt.

	s. d.		s. d.
Best plain red roofing (per 1000)	42 0	Best "Hartshill" brand, plain sand-faced (per 1000)	50 0
Hip and Valley (per doz.)	3 7	Do. pressed (per 1000)	47 6
Best Broseley (per 1000)	50 0	Do. Ornamental (per 1000)	50 0
Do. Ornamental (per 1000)	52 6	Hip (per doz.)	4 0
Hip and Valley (per doz.)	4 0	Valley (per doz.)	3 6
Best Ruabon red, brown, or brindled (Edw'ds) (per 1000)	57 6	Staffords. (Hanley) Reds or Brindled (per 1000)	42 6
Do. Ornamental (per 1000)	60 0	Hand-made sand-faced (per 1000)	45 0
Hip (per doz.)	4 0	Hip (per doz.)	4 0
Valley (per doz.)	3 0	Valley (per doz.)	3 6

WOOD.

Building Wood.	At per standard.				
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in.	£	s.	d.	£	s. d.
	14	0	0	15 10	0
Deals: best 3 by 9	13	10	0	14 10	0

WOOD (*continued*).

Building Wood (*continued*)—	At per standard.				
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	£	s.	d.	£	s. d.
	11	10	0	12 10	0
Battens: best 2½ by 6 and 3 by 6	0	10	0	less than 7 in. and 8 in. less than best.	
Deals: seconds	1	0	0	"	"
Battens: seconds	0	10	0	"	"
2 in. by in. and 2 in. by 6 in.	9	10	0	10	10 0
2 in. by 4½ in. and 2 in. by 5 in.	9	0	0	10	0 0
Foreign Sawn Boards—					
1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.	
¾ in.	1	0	0	"	
Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft.				
	5	6	0	5	10 0
Seconds	4	10	0	5	0 0
Small timber (8 in. to 10 in.)	3	17	6	4	0 0
Small timber (6 in. to 8 in.)	2	5	0	3	10 0
Swedish balks	2	12	6	3	0 0
Pitch-pine timber (30 ft. average)	4	10	0	5	5 0

Joiners' Wood.	At per standard.				
White Sea: first yellow deals, 3 in. by 11 in.	£	s.	d.	£	s. d.
	24	10	0	25	10 0
3 in. by 9 in.	22	10	0	23	10 0
Battens, 2½ in. and 3 in. by 7 in.	17	0	0	18	0 0
Second yellow deals, 3in. by 11in.	19	0	0	20	0 0
" " 3 in. by 9 in.	18	0	0	19	10 0
Battens, 2½ in. and 3in. by 7 in.	14	0	0	15	0 0
Third yellow deals, 3 in. by 11 in. and 9 in.	14	0	0	15	0 0
Battens, 2½ in. and 3 in. by 7 in.	11	10	0	12	10 0
Petersburg: first yellow deals, 3 in. by 11 in.	21	10	0	22	10 0
Do. 3 in. by 9 in.	18	10	0	19	10 0
Battens	14	0	0	15	0 0
Second yellow deals, 3 in. by 11 in	16	10	0	17	10 0
Do. 3 in. by 9 in.	15	0	0	16	0 0
Battens	11	10	0	12	10 0
Third yellow deals, 3in. by 11 in.	13	10	0	14	10 0
Do. 3 in. by 9 in.	13	0	0	14	0 0
Battens	10	10	0	11	0 0
White Sea and Petersburg—					
First white deals, 3 in. by 11 in.	15	0	0	16	0 0
" " 3 in. by 9 in.	14	0	0	14	10 0
Battens	11	10	0	12	10 0
Second white deals, 3in. by 11in.	14	0	0	15	0 0
" " 3 in. by 9 in.	13	0	0	14	0 0
Battens	10	10	0	11	0 0
Pitch-pine: deals	19	0	0	21	0 0
Under 2 in. thick extra	0	10	0	1	0 0
Yellow Pine—First, regular sizes	44	0	0	upwards.	
Oddments	32	0	0	"	
Seconds, regular sizes	33	0	0	"	
Oddments	28	0	0	"	
Kauri Pine—Planks, per ft. cube.	0	3	6	0	5 0
Danzig and Stettin Oak Logs—					
Large, per ft. cube	0	3	0	0	3 9
Small " "	0	2	6	0	2 6
Wainscot Oak Logs, per ft. cube	0	5	6	0	6 0
Dry Wainscot Oak, per ft. sup. as inch	0	0	8½	0	0 9½
¾ in. do. do.	0	0	7	—	
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch..	0	0	10	0	1 1
Selected, Figury, per ft. super. as inch	0	1	6	0	2 6
Dry Walnut, American, per ft. super. as inch	0	0	10	0	1 0
Teak, per load	18	0	0	22	0 0
American Whitewood planks, per ft. cube	0	4	0	0	5 0

Prepared Flooring, etc.—	Per square.				
1 in. by 7 in. yellow, planed and shot	0	13	6	0	17 0
1 in. by 7 in. yellow, planed and matched	0	14	0	0	18 0
1¼ in. by 7 in. yellow, planed and matched	0	16	0	1	0 0
1 in. by 7 in. white, planed and shot	0	12	0	0	14 6
1 in. by 7 in. white, planed and matched	0	12	6	0	15 0
1¼ in. by 7 in. white, planed and matched	0	15	0	0	16 6
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0	0	13 6
1 in. by 7 in. " "	0	14	0	0	18 6
¾ in. by 7 in. white " "	0	10	0	0	11 0
1 in. by 7 in. " "	0	12	9	0	15 0

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton.				
Rolled Steel Joists, ordinary sections	£	s.	d	£	s. d.
	7	0	0	7	10 0
Compound Girders, ordinary sections	9	0	0	10	0 0
	11	0	0	12	0 0
Steel Compound Stanchions					
Angles, Tees, and Channels, ordinary sections	9	0	0	10	0 0
	9	0	0	9	10 0
Flitch Plates					
Cast Iron Columns & Stanchions, including ordinary patterns	7	10	0	8	10 0

METALS.

	Per ton, in London.				
Iron—	£	s.	d.	£	s. d.
Common Bars	8	10	0	9	0 0
Staffordshire Crown Bars, good merchant quality	8	15	0	9	5 0
Staffordshire "Marked Bars"	10	10	0	—	
Mild Steel Bars	8	15	0	9	5 0
Hoop Iron, basis price	9	5	0	9	10 0
" " Galvanised	17	0	0	—	

(*And upwards, according to size and gauge.)

Sheet Iron Black—					
Ordinary sizes to 20 g.	9	15	0	—	
" " 24 g.	10	15	0	—	
" " 26 g.	12	5	0	—	
Sheet Iron, Galvanised, flat, ordinary quality—					
Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	15	0	0	—	
Ordinary sizes to 22 g. and 24 g.	15	10	0	—	
" " 26 g.	16	10	0	—	
Sheet Iron, Galvanised, flat, best quality—					
Ordinary sizes to 20 g.	18	0	0	—	
" " 22 g. and 24 g.	18	10	0	—	
" " 26 g.	20	0	0	—	

METALS (*continued*).

	Per ton, in London. £ s. d.	£ s. d.
Galvanised Corrugated Sheets—		
Ordinary sizes, 6ft. to 8ft. 20 g.	14 10 0	—
" " 22 g. and 24 g.	14 15 0	—
" " 26 g.	16 5 0	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	12 0 0	—
Best Soft Steel Sheets, 2 g. & 24 g.	13 0 0	—
" " " 26 g.	15 0 0	—
Cut Nails, 3 in. to 6 in.	10 10 0	11 0 0
(Under 3 in., usual trade extras.)		

LEAD, &c.	Per ton, in London. £ s. d.	£ s. d.
LEAD—Sheet, English, 4lb. and up	16 10 0	—
Pipe in coils	17 0 0	—
Soil pipe	20 0 0	—
Compo pipe	20 0 0	—
ZINC—Sheet—	In casks of 10 cwt.	
Vielle Montagne	31 0 0	—
Silesian	30 10 0	—
Zinc, in bundles, 1s. per cwt. extra.		
COPPER—		
Strong Sheet per lb.	0 1 0	—
Thin "	0 1 1	—
Copper nails "	0 0 10	—
Copper wire "	0 0 10	—
BRASS—		
Strong Sheet "	0 0 11	—
Thin "	0 1 0	—
TIN—English Ingots "	0 1 8	—
SOLDER—Plumbers' "	0 0 7½	—
Tinmen's "	0 0 9½	—
Blowpipe "	0 1 1	—

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.

Per Ft., Delivered.

15 oz. thirds	2½d.	26 oz. fourths	3d.
" fourths	1½d.	32 oz. thirds	3½d.
21 oz. thirds	3d.	" fourths	4½d.
" fourths	2½d.	Fluted Sheet, 15 oz.	3½d.
23 oz. thirds	4d.	" 21 oz.	4½d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

Per Ft., Delivered.

⅛ Hartley's	2d.	Figured, Oxford	
¼ "	2½d.	Rolled, & 'Oceanic'	
⅜ "	2¾d.	Glass, white	3½d.
		Ditto, tinted	5d.

OILS, &c.		£ s. d.
Raw Linseed Oil in pipes	per gallon	0 3 9
" " " in barrels	"	0 3 10
" " " in drums	"	0 4 0
Boiled " " in barrels	"	0 4 0
" " " in drums	"	0 4 3
Turpentine in barrels	"	0 4 5
" in drums	"	0 4 7
Genuine Ground English White Lead, per ton		21 0 0
Red Lead, Dry	"	20 0 0
Best Linseed Oil Putty	per cwt.	0 10 6
Stockholm Tar	per barrel	1 12 0

VARNISHES, &c.	Per gallon. £ s. d.
Fine Pale Oak Varnish	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 6
Fine Elastic Carriage	0 12 0
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 10 0
Finest Pale Durable Copal	0 18 0
Extra Pale French Oil	1 1 0
Eggshell Flating Varnish	0 18 0
White Pale Enamel	1 4 0
Extra Pale Paper	0 12 0
Best Japan Gold Size	0 10 6
Best Black Japan	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 9
French and Brush Polish	0 10 6

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursday.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.* unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

ACTON, W.—For erecting a pavilion at the Isolation Hospital, West Farm-road, for the Urban District Council. Mr. F. Sadler, Engineer and Surveyor:—

G. Bollom, Horn-lane, Acton, W. £4,000

BIGGLESWADE.—For the erection of three pairs of cottages, Saffron-road, Biggleswade, for Mrs. C. Furgusson. Mr. Thomas Cockrill, A.M.Inst.C.E., architect, 8, Bank-buildings, Bedford, and Market-square, Biggleswade:—

G. Wrycroft & Sons	£1,175	C. Wright, Langford*	£1,015
G. Bartle & Son	1,120		
C. D. Woodward	1,020		

BRAYFORD (N. Devon).—For erecting a house and offices in connexion with the Baptist Church, the Baptist Connexion, for Rev. E. J. Burrows, Baptist Minister, Charles, South Molton, Devon. Mr. Thomas Carnell, architect. Quantities by the contractors:—

Sanders & Son	£644 18 0	Rice & Co.	£494 14 0
Slee & Son	567 2 10	Hancock & Huxtable, Stoke	
Holcombe & Son	538 10 0	Rivers, Barnstaple*	490 0 0
Hemmet Bros.	509 17 0		
Webber & Co.	497 0 0		

CARSHALTON.—For making-up South-avenue and road-making, kerbing, etc., in certain other thoroughfares, for the Urban District Council. Mr. W. Willis Gale, A.M.Inst.C.E., Surveyor to the Council:—

—	South-avenue. £ s. d.	High-street, etc. £ s. d.	Stanley Park-road. £ s. d.	Westmead-road. £ s. d.	Banstead-road. £ s. d.
J. Mowlem & Co.	329 4 8	—	609 0 0	1,024 0 0	1,027 0 0
E. B. Yewen	317 7 1	840 1 8	627 6 4	987 4 6	953 19 10
R. W. Swaker	—	1,022 19 0	860 8 10	1,418 0 0	1,009 19 0
S. Kavanagh & Co.	289 11 8	768 3 1	628 15 8	986 19 9	978 14 6
F. Potter	307 0 0	732 0 0	‡603 0 0	‡919 0 0	928 0 0
G. Adey	334 0 10	906 9 11	685 6 7	1,420 11 0	‡852 14 2
J. May & Son	277 5 6	‡727 14 3	614 10 1	943 0 9	929 8 4
E. & E. Iles	335 8 10	856 9 9	656 4 6	1,123 3 6	985 0 0
A. B. Cook, Carshalton	‡292 5 10	—	—	—	—

‡ Recommended for acceptance.

CAMBRIDGE.—For alterations and additions to the "Ancient Druid" Inn, Fitzroy-street, Cambridge, for Messrs. Charles Wells, Ltd., Horne-lane Brewery, Bedford. Mr. Thomas Cockrill, architect, 8, Bank-buildings, Bedford, and Market-square, Biggleswade:—

Kidman Bros.	£398	J. Brignall	£366
Bartle & Son	395	H. Rooke, Cambridge*	318
Waycroft & Son	375		

CARLTON.—For branch premises, Gedling-road, Carlton, for the Netherfield Co-operative Society, Ltd. Mr. Walter H. Woods, architect and surveyor, High-street, Long Eaton, near Nottingham. Quantities by the architect:—

Barlow & Son	£993 10	Loach, Station-road, Carlton*	£924 0
Short	955 0		
Lewin	948 10	Harper	923 0

DUDLEY.—For constructing workhouse sewage disposal and drainage works, for the Guardians. Mr. Stanley C. Eagles, C.E., M.R.San.Inst., Engineer to the Guardians:—

Guildhall Engineering and Decorating Co.	£1,349 0 0	W. Thorpe	£1,268 16 1
		J. Edwards	1,199 4 6
		G. Law & Co.	1,196 2 0
C. Lewis & Martin, Ltd.	1,347 0 0	J. Taylor & Co.	1,190 14 2
		A. Hill & Co.	1,124 14 3
H. H. Hughes	1,323 1 3	J. Farley	1,093 16 5
S. Wood	1,300 0 0	J. A. Meredith	1,055 0 0
C. P. Trentham	1,281 10 0	J. Guest & Son	1,020 0 0
R. Harris & Son	1,275 15 6	A. J. Crump, Dudley*	959 3 6

ELWORTH.—For metalling, paving, channelling, and making-up Oak and Eva streets. Mr. Arthur Lawton, Surveyor, Congleton:—

Hutton & Sons	£391	Stringers	£345
Taylor & Sons	372	Jackons, Ltd., Sandbach*	336
Bennie & Thompson	357		

[Surveyor's estimate, £338.]

ERITH.—For private street works, Olive-road, Belvedere. Mr. Harold Hind, Surveyor to the Urban District Council:—

Milton Bros.	£673 0 0	E. Tree & Sons	£593 5 3
A. C. J. Price	670 1 8	H. E. Chandler, Belvedere*	577 9 0
J. G. Truman, Ltd.	661 0 0		

GLYNCOCH MILL FARM.—For reconstructing stoneware pipe carriers, and for providing and erecting on steel trestles steel tubes, for Merthyr and Aberdare Joint Farms' Management Committee. Mr. A. J. Marshall, C.E., Town Hall, Merthyr Tydfil:—

E. H. Page	£453 10 6	J. O. Brettell & Co	£305 13 4
G. L. Morgan	329 14 8	R. Webb	269 11 4
W. Jenkins	316 12 0	J. Sutherland, Abercynon*	265 7 5
W. Brown	310 11 6		

GRIMSBY.—For extension of Free Library. Mr. H. Gilbert Whyatt, A.M.Inst.C.E., Borough Engineer and Surveyor:—

T. R. Waterman	£1,237 10 0	Swaby & Walsham	£1,095 0 0
C. A. Marshall	1,210 0 0	W. Gilbert*	1,092 17 6
E. Smith	1,106 0 0		
Hewins & Goodhand	1,100 0 0		

[All of Grimsby.]

HARROGATE.—For private street improvement works in Belton Grove-avenue, for the Corporation. Mr. F. Bagshaw, Borough Engineer and Surveyor:—

C. A. Nettleton, Station-parade, Harrogate* £933 10

HAYES (Middlesex).—For the erection of an entrance lodge to their works in Printing House-lane, for Messrs. Harrison & Sons of 45, St. Martin's-lane, W.C. (timber framing to be executed in pine). Messrs. Hayward & Maynard, architects, 14, John-street, Adelphi, W.C.:—

Fairhead & Son	£915	W. J. Dickens	£843
Bollom	846		

HINDLEY.—For flagging at Argyle-street Council Schools, for the Education Committee. Mr. Oswald P. Abbott, Surveyor to the Urban District Council:—

H. & F. Lomax, Platt Bridge £133 5

LONDON.—For the provision of a lift at No. 23, Belvedere-road, for the London County Council:—

Easton Lift Co., Ltd.	£395 0
Smith, Major, & Stevens, Ltd.	375 0
R. Waygood & Co., Ltd.	344 10
Medway's Safety Lift Co., Deptford, S.E.*	295 0

[The Architect's estimate, comparable with the above tenders, is £350.]

LONDON.—For the provision of additional accommodation at the Thames-street Depôt, for the City Corporation:—

J. Lidstone & Son	£390 15	A. H. Inns	£328 15
Dearing & Co., Ltd.	381 0	W. Smith & Son	319 0
J. S. Shaw	350 0	C. P. Roberts & Co.*	272 0
A. J. Staines & Co., Ltd.	345 0		

LEPTON.—For Contract No. 1, providing and laying earthenware pipe sewers and cast-iron sewers, together with manholes, etc.; Contract No. 2, constructing sewage outfall works, together with approach road, etc., for the Lepton Urban District Council. Messrs. Brook, Dransfield, & Dyson, Council's Engineers, Estate-buildings, Huddersfield:—

	Contract No. 1.	Contract No. 2.
M. Arundel	£4,511 5 7	£1,155 14 4
T. Wrigley	5,240 0 0	1,382 0 0
J. W. Boothroyd, Almondbury, Huddersfield*	3,810 13 8	1,139 8 9
W. Waring & Sons	4,100 0 0	1,300 0 0
E. Taylor	4,953 5 9	1,279 5 4
A. Graham & Sons	4,040 0 0	1,050 0 0
J. Bentley & Co.	4,446 10 6	1,230 0 0
Bentley & Swift	4,341 7 0	1,206 5 10
Bower Bros.	3,895 0 0	1,145 0 0
J. E. Nadin	5,525 3 7	1,146 6 0
G. Dougill & Sons	4,304 13 4	1,221 12 0
A. Graham	4,561 0 0	1,277 8 6
R. Cunningham	4,123 17 2	1,480 16 9
J. Hollingworth & Sons	5,306 10 0	1,511 10 0
Edmondson & Wyatt	5,330 0 0	1,260 0 0
R. Turner	4,549 0 0	1,400 0 0
E. Bushby & Sons	4,772 9 9	1,424 3 5
G. Bell & Sons	4,166 2 0	1,487 0 0
T. E. Sugden	4,800 8 6	1,298 0 7
B. Riley	4,600 0 0	1,150 0 0
P. D. Hayes & Sons	5,280 17 3	1,418 18 0
Parker & Sharp	4,461 6 10	1,379 0 6
Yorkshire Hennebique Contracting Co., Ltd.	3,842 13 2	1,282 7 6
Ward & Tetley	4,481 2 11	1,219 15 3
J. Wimpenny & Co.	4,050 0 0	1,211 0 0
B. Firth	7,361 15 7	1,572 17 10
A. Braithwaite & Co.	5,858 19 9	1,264 5 0
W. Morley & Sons	5,484 9 10	1,259 5 6
Holme & King, Ltd.	4,901 14 0	1,279 7 5
Balmforth Bros.	3,820 10 8	1,272 5 11
T. Swinton Dodd	4,172 14 0	1,108 9 0

LONDON.—For installing electric light at the new fire-station in course of erection in Brunswick-road, Poplar, for the London County Council:—

G. E. Taylor & Co.	£192 0 0
Waring & Withers	184 8 3
G. Harland Bowden & Co., 5, Laurence Pountney-hill, E.C.*	156 14 0

[The Chief Engineer's estimate, comparable with the tenders, is £162.]

LONDON.—For the construction of the second portion of the embankment wall between Lambeth-bridge and the Victoria-tower-gardens, for the London County Council:—

A. Fasey & Son	£38,694 11 10
Rowlingsons & Co.	38,078 5 0
Perry & Co., Ltd.	35,771 0 0
A. M. Coles	35,674 14 8
Pethick Bros., Ltd.	35,640 0 0
D. R. Paterson, Ltd.	33,721 10 8
H. Lovatt, Ltd.	33,197 8 5
W. Muirhead & Co., Ltd.	32,173 0 6
S. Pearson & Son, Ltd.	32,121 13 2
Mitchell Bros. (Contractors), Ltd.	31,091 12 3
Dick, Kerr & Co., Ltd.	29,459 7 7
W. Scott & Middleton, Ltd.	28,082 4 8
Kirk & Randall	26,978 0 0
Monk & Newell, Ltd.	25,217 1 6
Leslie & Co. Ltd.	24,831 0 0
J. Mowlem & Co., Ltd., Grosvenor-road, S.W.*	24,642 0 0
The British Construction Co.	23,927 0 0

[The estimate of the Chief Engineer, comparable with the above tenders, is £31,729.]

LONDON.—For the provision and erection of unclimbable iron fencing adjoining the sewer aqueduct at Wandsworth, for the London County Council:—

Raybould, Ltd.	£301 19 6‡
Hill & Smith, Ltd.	256 5 9
T. W. Palmer & Co.	245 13 7
W. Bain & Co.	232 11 6
Bayliss, Jones, & Bayliss	232 1 6
W. Miller & Sons	215 0 11
J. Elwell, Ltd., Birmingham*	196 15 6

[‡ Corrected amount.]

LONDON.—For removing three iron buildings, offices, coal store, etc., from the Hitherfield-road site, Wandsworth, and re-erecting them on the Venetian-road site, Norwood, including new foundations, drainage, etc., for the London County Council:—

Croggon & Co. Ltd.	£1,715	W. Harbrow South Bermondsey*	£1,381
Humphreys, Ltd.	1,450		
J. McManus	1,425		

LONDON.—For the erection of a tramway weather shelter at the junction of Queen's-road and New Cross-road, Deptford, for the London County Council:—

S. Pontifex & Co.	£279 10
C. Wall, Ltd.	215 0
The St. Pancras Iron Works Co., Ltd., King's Cross, N.W.*	210 0

[The Architect's estimate, comparable with the above tenders, is £240.]

LONDON.—For the enlargement by eighty places of the junior mixed school on the Thomas-street site, Limehouse, for the London County Council:—

H. Groves	£1,510 0 0	T. D. Leng	£1,310 0 0
Newell & Lusty	1,406 5 7	H. C. Horswill	1,283 0 0
W. Akers & Co., Ltd.	1,423 0 0	J. & C. Bowyer, Ltd.	1,264 0 0
E. A. Roome & Co.	1,381 0 0	Thomas & Edge, Anglesea-avenue, Woolwich*	1,254 0 0
A. E. Symes	1,370 0 0		
E. Lawrance & Sons, Ltd.	1,325 0 0		
H. L. Holloway	1,313 0 0		

[The Architect's estimate, comparable with the tenders, is £1,295.]

LONDON.—For repairs and decorations to No. 35, Brookmill-road, Deptford, for the Metropolitan Water Board:—

W. Oddy	£199 10 0	W. King & Sons	£153 0 0
Clemens Bros.	175 10 0	Webb & Sons	149 15 0
W. Oley	161 19 3	W. Pinney	135 0 0
H. Groves	160 0 0		

LOUGHTON.—For constructing a bacterial filter at the sewage disposal works, for the Urban District Council. Mr. Horace White, Surveyor to the Council:—

W. T. Jackson	£1,208 12 2
P. R. Paul	1,110 0 0
W. Manders	1,095 0 0
G. Bell & Sons, Ltd.	1,019 0 0
W. & C. French, Buckhurst Hill*	998 0 0

[Council Surveyor's estimate, £1,000.]

ROTHERHAM.—For sewer extensions at Swallownest, Brampton Bierlow, and Brinsworth, for the Rural District Council. Mr. B. Hey, Surveyor, Imperial-buildings, Rotherham:—

—	Swallownest.	Brampton Bierlow.	Brinsworth.
	£ s. d.	£ s. d.	£ s. d.
T. Gray & Sons, Tinsley, near Sheffield	59 0 0*	36 0 0	71 0 0*
C. Green's Sons, Rotherham	61 0 0	36 0 0*	79 0 0
Hunt & Co.	73 11 6	—	—
F. Foers & Son	82 6 0	—	107 4 0

SANDERSTEAD.—For carrying out certain private street works, for the Croydon Rural District Council. Mr. R. M. Chart, F.S.I., Surveyor to the Council:—

—	Bramble-down-road.	Essen-don-road.	May-field-road (Foot-paths).	Purley Oaks-road (part of).
	£	£	£	£
E. Free & Sons	917	290	411	891
W. Hall, Colvin-road, Thornton Heath	867*	264*	397	896
E. & E. Iles, North-road, Wimbledon	878	274	353*	891*
J. May & Sons	970	275	445	917
J. Mowlem & Co.	977	318	401	984
E. Yewen	926	280	411	919
Surveyor's estimate	911	287	394	969

STRATFORD, E.—For installing electric light at Salway-place Schools, for West Ham Education Committee. Mr. William Jacques, A.R.I.B.A., Architect to the Committee:—

	Stannos.	Simplex.
J. T. Halsey	£223 0 0	£178 10 6
Johnson & Phillips	217 0 0	204 10 0
W. E. King	—	273 14 6
Mayfield & Co.	200 18 2	185 4 3
Parry Mell	180 10 0	195 10 0
E. Morgan	149 0 0	151 10 0
Newbald & Co.	220 0 0	199 0 0
Ryan & Son	270 0 0	210 0 0
Simmons & Co.	280 0 0	238 0 0
Weston & Sons	230 0 0	159 10 0
West Ham Electricity Department, Stratford	190 17 0	*146 2 0

ST. ALBANS.—For providing and laying sewer in the Castle-road, Camp Ward, for the Rural District Council. Mr. Henry F. Mence, Surveyor, St. Albans:—

E. E. Cousins, Avenue-road, St. Albans	£195 15 5

SOUTHAMPTON.—For private street works in Malmesbury-road, for the Corporation. Mr. J. A. Crowther, Borough Engineer:—

T. B. Cooper & Co.	£1,075 9 11	J. Douglas	£999 0 0
J. Nichol	1,075 0 0	F. Osman & Co., Southampton*	995 0 0

WELWICK (East Yorks).—For erecting a Primitive Methodist Church and School. Mr. T. Brownlow Thompson, architect, 15, Parliament-street, Hull:—

Bricklayers.

F. Hall	£305 0 0	Boyes & Oliver	£269 0 0
J. Heron	302 7 6	G. F. Tasker	263 6 6
F. Sewell	279 12 2	H. Jackson, Hull*	188 0 0
J. Wilkinson	270 6 3		

Slaters.

W. Wilde	£55 10 0	J. H. Hunter	£48 9 0
W. Folkard	54 5 0	D. Townsley, Hull*	46 0 0
T. J. Chapman	50 19 10		
T. Wilde & Son	50 0 0		

Painters.

W. E. Hunter	£62 7 4	F. W. Coates, Keyingham*	£22 13 6
Lightowler & Son	47 8 6	H. Sargeant	19 4 6
Drury & Son	37 1 0		
T. W. Mackrill	23 12 9		

Smiths.

King & Co.	£29 7 2	Young & Peck, Hull*	£23 0 0

Joiners.

W. H. Beal	£431 11 0	H. Remmardson	£272 0 0
H. Kaye	331 0 0	J. Stamp	257 0 0
J. Wiles	323 0 0	G. W. Berridge	252 0 0
A. Hunter	312 0 0	T. W. Gothorp	250 0 0
W. Turner	289 19 0	C. Fewster, Patrington*	240 11 0
Boyes & Oliver	280 0 0		
H. Sargeant	278 3 4		

Plumbers.

G. Cundall	£25 10 0	J. Smith	£22 2 6
C. W. Eastwood	24 7 6	A. Abbs, Hull*	17 18 0

WINCHMORE HILL.—For alterations and additions to the stewards' offices at the Northern (Convalescent) Fever Hospital, for the Metropolitan Asylums Board. Mr. W. T. Hatch, M.Inst.C.E., M.I.Mech.E., Engineer-in-Chief:—

B. Jewell	£302 0	G. Eyles	£243 0
W. Reason	349 0	J. Oram & Son, Waltham Abbey, Essex*	229 10
B. E. Nightingale	319 0		
Stevens & Sons	298 0		
L. Kazak	252 0		

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